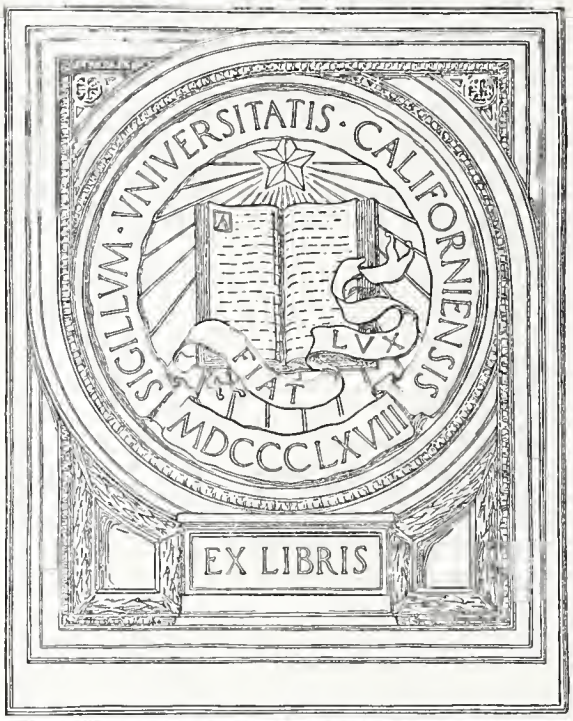
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THE JOURNAL OF THE ARKANSAS MEDICAL SOCIETY

Vol. 56 No. 1

FORT SMITH, ARKANSAS

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Clarksville

PRESIDENT

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1959-1960

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OF THE ARKANSAS MEDICAL SOCIETY
PUBLISHED MONTHLY UNDER DIRECTION OF THE COUNCIL

Volume 56 JUNE, 1959 Number 1

83rd Annual Session

Arkansas Medical Society

PRESIDENT'S ADDRESS

LOUIS K. HUNDLEY, Pine Bluff

Members of the Society and honored guests. It gives me great pleasure to welcome you to the Eighty-third Annual Session of the Arkansas Medical Society. Ft. Smith, the Sebastian County Medical Society, and its Auxiliary have done their usual excellent job in planning for our comfort, entertainment and enlightenment. I feel certain that this meeting will long be remembered with pleasure by all of us.

I would be remiss if I did not mention the terrific job accomplished by Chairman Wright Hawkins and his Program Committee. A glance at your printed program will reveal the names of some of the truly great men of medicine of our day who have been brought here to give you the benefits of their experience in the many fields of modern medicine. It has been a year long job to accomplish this and we are all grateful to Chairman Hawkins and his Committee for arranging it.

In the past thirteen years of work with the Arkansas Medical Society I have seen it grow in size and complexity to an almost astounding degree. I am afraid that not many of us realize the ways in which our Society contributes to the welfare of our citizens and provides assistance to our members. A brief look at the year's work of some of our committees may give you a better picture of these things. In the March issue of our Journal there are reports of thirty-six committees, individuals, and Boards who have represented the Society during the year. They cover our relationship with our Government, the public and our patients, the A. M. A., other state Societies, our component county societies and our individual members. Individuals serving on these committees, giving of their time and money without thought of recompense, make possible the functions of our society.

Time does not permit a review of the activities of all these groups, but I feel that a look at the high-lights of a few of these reports will give us a better idea of the tremendous amount of work that has been accomplished.

Our Insurance Committee under Chairman Sam Jameson has just completed a two-year job which is monumental in proportions. As a result of meetings with the Governor, Members of the Legislature, and the insurance profession, attention was directed toward the many abuses perpetrated on our citizens in the field of Health Insurance. As a direct result of this committee's work a new and model Insurance Code was passed by the Legislature. A great deal of credit goes

to Senator Shackelford of El Dorado who worked untiringly with our committee to bring this about.

The committee was also instrumental in forming a Hospital, Insurance, and Physicians (HIP) Committee to foster better relations and understanding between the groups.

A third accomplishment was the devising and establishment of a "Standard Claim" form which will be put in use April 15th. This is a reform for which the doctors have long pled and will greatly simplify the reporting of injuries and illness to the insurance companies.

An additional blessing for the Society, the committee has, after examining many proposals, obtained for us a Group Life Insurance Plan which is offered to us at this convention for the first time. With sufficient participation this can be of great benefit to every member.

Our Public Relations Committee has taken a new lease on life and after assisting Dr. McDaniel in putting on his truly phenomenal "Festival of Faith" at Tyronza, it has continued its efforts to improve our relations with the public through local newspaper releases and radio programs. The committee's recommendations have been accepted by the Council and for the first time this Annual Session will have the benefit of a professional Public Relations man to handle the publicity. It is hoped that the results will justify the faith of Dr. Hyatt and his committee.

In the field of Medical Education, Jack Kennedy and his committee have worked closely with the Medical School authorities to carry out the wishes of this Society. As a result, an entire day will be devoted to a program on Medical Ethics for the Senior Class. This is a step forward and it is to be hoped that the school will see fit to include a formal course in Ethics in its curriculum for the coming year.

Associate Dean Jack Riggins and his Committee on Post-graduate Education have revived this program. At the urgent request of the Arkansas Academy of General Practice, Dr. Riggins made several trips last summer to study the programs offered by the various schools of medicine. During this year formal



PRESIDENT JAMES M. KOLB CONGRATULATES PRESIDENT-ELECT J. J. MONFORT.

courses in seven fields are offered by the School. Plans are now in the making for further expansion of this program.

Our Maternal and Child Welfare Committee with its Chairman Eugene Crawley has had a busy year. It helped to develop a teaching outline for school health which is now being used in all schools; in cooperation with the State Department of Education it helped to develop pilot studies in physical fitness for twenty schools; set up the medical policies for the Arkansas Children's Colony; developed a committee within the Arkansas Medical Society to study fetal mortality and worked for improvement in this area; and finally, conducted a study to develop a program to combat Staphylococcal infection in the hospitals and communities of our State. The energy of such a group is to me amazing.

Although established only this year, our Committee on the Problems of the Aging has already plunged into a very ambitious program. Chairman L. E. Drewery attended the A. M. A. National Conference on problems of the aging and on his return started work with his group to establish a state-wide committee including all agencies interested in this problem. Our committee is conducting a study of health insurance proposals for our senior citizens and also a study of the nursing homes in the state, looking toward improvement of these facilities. With the cooperation of the Rural Health Committee they plan to devote the next Rural Health Conference to a study of all these problems. They are also preparing themselves to make a contribution to the White House Conference on the Aging to be held in 1961.

Our State Board of Medical Examiners continues to be the watchdog which insures the maintenance of high standards of medical practice, and protects the public from charlatans and quacks. With the assistance of our Legislative Committee the Board is responsible for the reorganization and modernization of the Basic Science Board, correcting some glaring errors which had lowered our professional prestige in other states. We can now be assured of an adequate and fair examination in basic sciences.



President Louis K. Hundley administers the oath of office to incoming president James M. Kolb. Annual Banquet, April 14th, 1959.

The State Board of Health, although hampered by lack of funds and inadequate personnel continues to do its excellent job in safeguarding the health of our citizens. Dr. Herron and his staff are to be commended for their devotion and untiring efforts. I think it is noteworthy that nineteen members of our Society take the time to help in this field by serving as part-time health officers. The Health Department is deserving of our utmost help and encouragement.

Especial recognition is due our Legislative Committee. Elvin Shuffield has developed an organization which made its influence felt throughout the last General Assembly. Perhaps the best measure of the influence that the local doctors and their wives and friends can have is the discouragement which fell to the osteopaths in their bid for increased privileges. There never seemed to be any doubt in the minds of the Legislators as to how we felt and fortunately they felt the same way. It was certainly a job well done. The committee also helped to secure passage of the Insurance Code, and the Healing Arts bill, along with many other measures pertaining to matters of health.

The Arkansas Medical Society is extremely proud of the election of Bob Robins to the Board of Trustees of the American Medical Association last June. This is a well deserved honor, and I am sure that the A. M. A. will benefit greatly as a result of Bob's endeavors.

The Arkansas Academy of General Practice has, as usual, been the strong right arm of Arkansas Medical Society. We rejoice with them on the elevation of Fount Richardson to the presidency of the American Academy of General Practice. This rapidly growing organization is making itself felt throughout the medical world, and we can be justly proud of the part that Arkansas men have played in building this great Academy. The Arkansas Academy supported and assisted in the development of the program of Post-graduate education, it contributed to the Public Relations program by staffing a booth at the Arkansas Livestock Show, and it publishes a colorful and potent



Louis K. Hundley giving president's address at the Monday Morning General Session, April 13th, 1959.

newsletter to all its members. The Academy has helped formulate and support the policies of the Arkansas Medical Society.

Many other persons contribute to the accomplishments of our Society. Alfred Kahn as editor of the Journal has developed one of the outstanding Medical Publications in the country. Our Women's Auxiliary under the Presidency of Mrs. Gordon Oates, is one of the finest anywhere.

This Society is fortunate in having one of the outstanding Executive Secretaries in America. Under Paul Schaefer the Secretariat has carried on the administrative work of the society in a creditable manner. They not only keep our records, collect and disburse our funds, but also have full responsibilty for the administration of Medicare which is a tremendous job in itself. They do these things so quietly and effectively that I think we frequently overlook the wonderful job they do.

Thus you can get an idea of the myriad activities of our society. You can understand why it raises my boiling point when some unenlightened member comes up to ask, "Why should I pay dues to belong to the Medical Society? It doesn't **do** anything." I believe that if every member could hear or read this outline of our activities the question would be, "Do you think the dues are enough?"

I feel that 1958-59 has been a year of progress for the Arkansas Medical Society and I am proud of the men and women who have made it so. It has been an honor to serve as your President.



James M. Kolb presents plaque of appreciation from the Medical Society to past president Louis Hundley. Annual Banquet, April 14th, 1959.

PROCEEDINGS

83rd Annual Session

ARKANSAS MEDICAL SOCIETY

Goldman Hotel, Fort Smith, Arkansas

April 12-15, 1959

FIRST SESSION
HOUSE OF DELEGATES
April 12th, 1959

Speaker C. Lewis Hyatt called the meeting to order in the Main Dining Room of the Goldman Hotel, Fort Smith, at 4:30 p. m. He then requested L. H. McDaniel to give the invocation.

Secretary Shuffield called the roll of delegates. The following delegates and members seated as delegates by action of the House were present: BAXTER, E. M. Gray; BOONE, D. L. Owens; CHICOT, H. W. Thomas; CLARK, Eli Gary; CRAIGHEAD-POINSETT, Charles G. Swingle; CRITTENDEN, M. D. Deneke; CROSS, Vance J. Crain; DESHA, H. T. Smith; DREW, C. Lewis Hyatt; FRANKLIN, C. C. Long; GARLAND, Lon Reed, Ralph Patterson, James Leatherman; GRANT, Curtis B. Clark; HEMPSTEAD, J. W. Branch; HOT SPRING, C. R. Ellis; INDEPENDENCE, O. J. T. Johnston; JACKSON, Wayne Stanfield; JEFFERSON, Charles W. Reid; Oliver C. Raney; JOHNSON, Guy Shrigley; LOGAN, I. H. Jewell; MISSISSIPPI, Eldon Fairley; MONROE, E. D. McKnight; NEVADA, C. A. Hesterly; OUACHITA, R. B. Robins; POLK, David P. Hefner; PULASKI, James G. Stuckey, Wm. S. Orr, Frank Padberg, William A. Snodgrass, T. D. Brown, J. O. Porter, Hoyt Allen, E. J. Easley, Daniel H. Autry, F. Douglas Lawrason, Edwin F. Gray; SCOTT, H. B. Wright; SEBASTIAN, Art Martin, Wright Hawkins, J. F. Kelsey; UNION, George Burton, Sam Jameson; WASHINGTON, Coy Kaylor, Stanley Applegate.

The following councilors and other officers were present as members of the House of Delegates: President Louis K. Hundley, President-elect James M. Kolb, Secretary Elvin Shuffield, Councilors Joe Verser, Hugh Edwards, Fay Millwee, Robert Jones, Ross Fowler, L. A. Whittaker, Past Presidents R. C. Dickinson and W. R. Brooksher.

At the request of the Speaker, President Hundley introduced Dr. Milford O. Rouse, of Dallas, Texas, President of the Southern Medical Society. Dr. Rouse spoke briefly extending greetings from S. M. A. as well as from his own State of Texas.

Dr. R. B. Robins, Arkansas' representative on the AMA Board of Trustees, then introduced Dr. F. J. L. Blasingame, Executive Vice President of the American Medical Association. Following are extracts from Dr. Blasingame's address to the House:

One of our most far-reaching challenges, the urgency of which will magnify as years pass, concerns health care for the aged. The American Medical Association has recognized the importance of providing for our senior citizens, and has set into motion a positive, dynamic program designed to help the aged help themselves.

The AMA is not content with talking about its program. It is taking vigorous action to see that all the nation's aged will be able to lead productive and rewarding lives.

The AMA program for the aged is rooted in the concept of voluntary action on the part of the individual. There is no compulsion. Our program enables each person to provide realistically for health expenses in his later years.

To bring this plan into being, significant steps have been taken.

1. The AMA House of Delegates last December adopted a proposal which applies specifically

to the population group over 65 with very modest resources or low family income. For medical services rendered to this particular group, physicians are urged to accept a level of compensation that will permit the development of insurance and prepayment plans at a reduced premium rate.

2. State and local medical societies now are implementing this program on their own level. So far, several societies have endorsed the action, among which are official groups from Texas, West Virginia, Florida, New Jersey, California, Iowa and other states. The matter is being given top priority on the agendas of medical societies at their annual meetings this spring.

3. The AMA House of Delegates has voiced opposition to arbitrary retirement based on chronological age. While retirement is a long-awaited blessing for many of our nation's aging citizens, we feel it should be **voluntary** based on the desires and capabilities of the individual. Our Committee on Aging has urged labor and industry leaders to re-evaluate **compulsory** retirement policies. The AMA feels such isolation and forced inactivity is a gross injustice to our senior citizens and cannot be tolerated in a society which places a premium on individual ability.

4. We are working closely with both commercial and health insurance organizations to encourage the development of new insurance programs which offer more realistic coverage for persons 65 and over. Already, commercial firms have introduced guaranteed renewable contracts, "paid-up-at-65" and "65-plus" policies. Cooperating with the AMA, the Health Insurance Association of America has urged its member companies to provide policies renewable for life; coverage for persons **now** over 65; coverages that will continue after retirement, and inclusion in the group contract of the right to convert to an individual policy when employment is terminated.

5. The AMA has recommended the development of facilities tailored specifically to the health needs of the aged. These include non-institutional care available through nursing homes, homemaker service and others.

6. Research has been increased into all aspects of preventive medicine, especially concerning the aged. Physicians want to prevent illness today rather than treat it tomorrow.

We hope these steps and many others will bring increasing public acceptance of the realization that we all share the social obligation of giving our aging population the opportunity to remain active and productive.

Speaker Hyatt then called for a report from the Credentials Committee. Chairman C. R. Ellis reported that credentials of the delegates present had been examined and found correct and that a quorum was present.

Upon the motion of Edwards and Whittaker, the House adopted as correct the minutes of the 82nd Annual Session as



R. C. Dickinson presents first check to J. M. Kolb for the Medical Education Foundation for Arkansas. House of Delegates, Wednesday morning, April 15th, 1959.

published in the June 1958 issue of the Journal of the Arkansas Medical Society.

Chairman of the Council Joe Verser moved adoption of the report of the Council as published in the March 1959 issue of the Journal of the Arkansas Medical Society. Upon second by Jameson, the House voted adoption of the report.

Verser then read the following supplementary report of the Council:

The Council met on March 22nd and transacted the following business:

1. Referred to the Insurance Committee the Blue Cross-Blue Shield proposal for insurance coverage for all members and their employees.

2. Approved Executive Committee action for legal counsel travel, purchase of space in the Medical Center Yearbook, and equipment purchase.

3. Authorized the Executive Secretary to employ a public relations man for one month for the purpose of publicizing the Annual Session.

4. Approved the inclusion of the technique of intravenous injections in nursing schools curricula.

5. Accepted a group life insurance proposal of the Northwestern National Life Insurance Company.

6. Deferred action on a recommendation to increase membership on the Committee on Liaison with Blue Cross-Blue Shield to ten members.

7. Approved the 1959 budget as published.

8. Accepted and approved the audit report for the year 1958.

9. Authorized the Medicare negotiating committee to renew the Medicare contract for one year.

10. Directed the Society's delegates to AMA to oppose any change in the principle of free choice of physician and to oppose closed panel systems in any form.

11. Voted to table a proposal for the establishment of a maternal mortality committee.

12. Voted to take no action on a request for the submission of nominations by the Society to the National Foundation's Health Scholarship Committee.

13. Voted to approve plans submitted by Chairman Kennedy of the Medical Education Committee for a one-day program on medical ethics at the Medical School.

14. Declined an invitation to join a society of southeastern state medical societies.

15. Voted to send the Chairman of the Committee on Mental Health to a Petit Jean workshop.

16. Voted to underwrite the Robins Breakfast at the American Medical Association meeting up to $300.



PAST PRESIDENTS' BREAKFAST, Wednesday, April 15th, 1959. Seated, left to right: H. T. Smith, O. J. T. Johnston, T. D. Brown, W. H. Mock, R. C. Dickinson. Standing, left to right, Euclid Smith, Fount Richardson, Louis K. Hundley, Joe F. Shuffield, and W. R. Brooksher.

17. Voted a contribution up to $250 to the Student American Medical Association to send two Arkansas students to their national meeting.

18. Voted to pay expenses for the Society's alternate delegates to the AMA to one meeting each year.

19. Voted to participate in a booth at the Arkansas Livestock Show and distribute educational material of a positive nature.

20. Also voted to sponsor a booth at the Arkansas Educational Association meeting in cooperation with the Arkansas Academy of General Practice.

Upon the motion of Verser and Edwards, that portion of the supplementary report of the Council was adopted as read.

Chairman Verser then requested Mr. Schaefer to present to the House a proposal by AMA that had been considered by the Council and referred to the House of Delegates for action. Mr. Schaefer read the following proposal:

"That the American Medical Association, the constituent and component medical societies, as well as physicians everywhere, expedite the development of an effective voluntary health insurance or prepayment program for the group over 65 with modest resources or low family income; that physicians agree to accept a level of compensation for medical services rendered to this group which will permit the development of such insurance and pre-payment plans at a reduced premium rate."

Speaker Hyatt called for the pleasure of the House. Elvin Shuffield stated that in order to get the matter on the floor for discussion, he would move that the proposal be adopted. Upon second by Kolb, the proposal was unanimously adopted by the House.

Chairman Verser then requested Mr. Schaefer to read to the House of Delegates a similar proposal by Blue Cross-Blue Shield for insurance coverage of persons over 65 at low premium rates and reduced fee schedules. The Speaker called for the pleasure of the House. Hundley moved that the House go on record as approving the principle of the proposal and that the Liaison Committee with Blue Cross-Blue Shield be instructed to meet with the officials of Blue Cross-Blue Shield to work out a plan and a fee schedule for the State of Arkansas to be presented by the Liaison Committee to the Council for their approval and referral to the House of Delegates. Gray of Pulaski



AT THE REGISTRATION DESK. President-elect J. J. Monfort, Miss Leah Richmond and Mrs. Pat Lau.

County voiced disapproval of that portion of the plan pertaining to radiology, pointing out that hospitalization was required for diagnostic x-ray. Upon second by Kolb, Hundley's motion carried unanimously.

Published committee reports were referred to either Reference Committee Number One (R. C. Dickinson, Horatio, Chairman; John Wood, Mena; James Leatherman, Hot Springs) or to Reference Committee Number Two (H. T. Smith, McGehee, Chairman; William A. Snodgrass, Little Rock; C. C. Long, Ozark). Speaker Hyatt called for supplementary committee reports.

Sam Jameson, Chairman of the Insurance Committee, moved adoption of the Insurance Committee report as published in the March 1959 issue of the Journal of the Arkansas Medical Society. Upon second by Edwards, the House approved and accepted the report. Jameson then presented a supplementary report of the activities of his Insurance Committee. Jameson moved adoption of the report and the House voted its approval.

Jameson introduced a resolution expressing appreciation to Congressman Wilbur Mills. The motion was seconded by Edwards and the House unanimously adopted the resolution.

Jameson introduced a resolution expressing appreciation and congratulations to Senator John McClellan. Upon second by Robins, the House unanimously adopted the resolution.

In the absence of Chairman J. W. Kennedy, Daniel Autry read a supplementary report of the Medical Education Committee. Upon the motion of Autry and Long, the report was adopted.

Elvin Shuffield gave a report of his Committee on Medical Legislation. Upon the motion of Shuffield and Brooksher, the report was adopted.

Gladden presented a resolution concerning fund raising of voluntary health organizations as Chairman of the Cancer Control Committee. Upon the motion of



NEWLY ELECTED OFFICERS, ARKANSAS MEDICAL SOCIETY, APRIL 15th, 1959
Left to right: Elvin Shuffield, Ross Fowler, Eldon Fairley, T. E. Townsend, John Wood, J. J. Monfort, Bill Dave Stewart, James M. Kolb, H. W. Thomas, C. Lewis Hyatt, George Burton, Joe Verser, Karlton Kemp, Robert Jones, Fount Richardson, (Past President) and Sam Jameson.

Gladden and Burton, the resolution was adopted by the House.

In the absence of Ouachita County Delegate James Hawley, R. B. Robins presented a resolution concerning a rehabilitation committee. The resolution was referred to Reference Committee Number One.

Jameson then presented a resolution concerning ethics at the request of a member of the Union County Medical Society. The resolution was referred to Reference Committee Number Two.

W. R. Brooksher, Chairman of the Constitutional Revisions Committee, read the recommendations of his committee regarding the proposed changes in the constitution and by-laws. The House adopted the following amendments:

ARTICLE II. Constitution. Amended to read:

ARTICLE II. Purposes of the Society.

The purposes of this Society shall be:

1. To federate and bring into one compact organization the entire medical profession of the State of Arkansas and to unite with similar societies of other states to form the American Medical Association;

2. To extend medical knowledge and advance medical science;

3. To elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws;

4. To promote friendly intercourse among physicians;

5. To guard and foster the material interests of its members and to protect them against imposition;

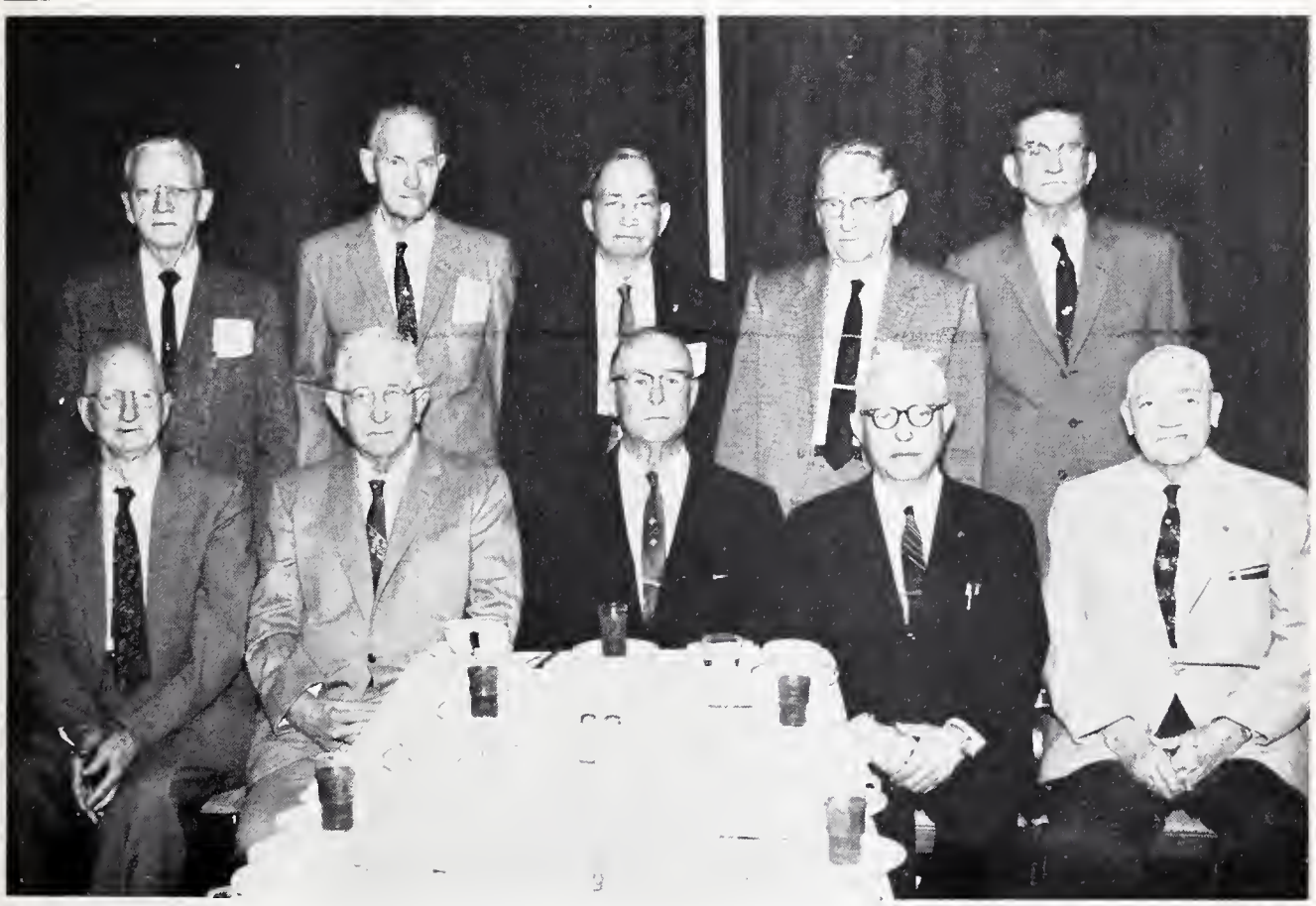
6. To enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life; and

7. To maintain medical ethics and to secure compliance with the art of medical practice.

ARTICLE VI. Constitution. Amended to read:

ARTICLE VI. Council.

The Council shall consist of the councilors, president, first vice president, president-elect, secretary, and treasurer. The speaker and vice speaker of the House of Delegates and past presidents shall be members ex-officio without vote.



FIFTY YEAR CLUB BREAKFAST, APRIL 14th, 1959

Seated, left to right: A. L. Peacock, A. C. Parker, W. A. Lamb, L. D. Reagan, and W. H. Mock. Standing, left to right: W. A. Fowler, E. M. Gray, J. H. McCurry, O. J. T. Johnston, and C. A. Henry.

There shall be two councilors from each councilor district to serve staggered terms of two years each. All councilors shall have equal voting privileges. A majority of the voting members shall constitute a quorum. Besides its duties mentioned in the By-Laws, the Council shall constitute the Finance Committee of the House of Delegates.

ARTICLE VIII, SECTION 2. Constitution. Amended to read:

ARTICLE VIII. Section 2.

The place for holding each annual session shall be decided by the House of Delegates two years in advance. The time for holding each annual session shall be decided by the Committee on Arrangements of the Arkansas Medical Society and the president and the Executive Secretary.

ARTICLE IX, SECTION 1. Constitution. Amended to read:

ARTICLE IX. Officers.

Section 1.

The officers of this Society shall be a president, president-elect, three vice-presidents, a speaker, a vice-speaker, a secretary, a treasurer, twenty councilors, and an executive secretary.

ARTICLE X. Constitution. Amended to read:

ARTICLE X. Funds and Expenses.

Section 1. Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates but shall not exceed the sum of $50.00 per capita per annum, except on four-fifths vote of the delegates present.

Section 2. Funds may also be raised by voluntary contributions, from the Society's publications and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expense of the Society for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Council before action is taken thereon.

ARTICLE XI, SECTION 2. Constitution. Amended to read:

ARTICLE XI.

Section 2. The House of Delegates may, by a two-thirds vote of its own members, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding upon the House of Delegates.

ARTICLE XII. Constitution. Amended to read:

ARTICLE XII. The Seal.

The Society shall have a common seal, with power to break, change or renew same at pleasure, by action of the House of Delegates.

CHAPTER V. BY-LAWS. Section amended to read:

CHAPTER V.

Section 1. In the event of the death or removal of the president-elect or his inability to



ANNUAL BANQUET, APRIL 14th, 1959, MASONIC TEMPLE. The banquet room was crowded.

serve, the House of Delegates shall meet within thirty days in a special session or otherwise, called by the president, to nominate and elect a president-elect, provided that such death, removal or inability to serve shall occur not less than sixty days prior to an annual session, in which event the election shall be at the forthcoming annual session.

CHAPTER V. BY-LAWS. Section amended to read:

CHAPTER V.

Section 4. The report of the Nominating Committee shall be the first order of business of the House of Delegates, after reading of the minutes, on the last day of the Annual Session.

CHAPTER V. BY-LAWS. Section amended to read:

CHAPTER V.

Section 5. The election of officers shall be the second order of business of the House of Delegates on the last day of the Annual Session.

CHAPTER V. BY-LAWS. Section added to read:

CHAPTER V.

Section 6. Nothing in this Chapter shall be construed to prevent additional nominations being made by members of the House of Delegates.

CHAPTER X. SECTION 1. Amended to read:

CHAPTER X.

Section 1. No address or paper before the Society, except those of the president and orators, shall occupy more than thirty minutes in its delivery and no member shall speak longer than five minutes nor more than once on any subject, except by unanimous consent.

CHAPTER VIII. SECTION 5. BY-LAWS. Amended to read:

BY-LAWS, CHAPTER VIII.

Section 5. The Committee on Health and Public Instruction shall represent the Society in those affairs having for their object the improvement in public and personal health, the prevention of epidemics, and the instruction of the people. It shall maintain close relations with the Board of Health, the State Health Officers, and the various health officials, assisting in the adoption of public health programs, the enforcement of sanitary laws, the study of the aging population through a sub-committee on aging, and to exercise leadership in the health problems of school children through a sub-committee or physical fitness and school health. As occasion demands, or when thought advisable, it shall supervise the preparation of articles of timely interest for pub-



INSPECTION OF PHYSICAL THERAPY ROOM, SPARKS MANOR, FORT SMITH, SUNDAY, APRIL 12th, 1959. Left to right: Milford O. Rouse, Dallas, Texas, President of the Southern Medical Association; Dr. F. J. L. Blasingame, Chicago, Illinois, Executive Vice President of the American Medical Association, Dr. Sam Jameson, Dr. R. B. Robins, Dr. Louis K. Hundley, and Mr. Marvin Altman, Administrator of Sparks Hospital and Manor.

lication in the newspapers or for broadcasting over the radio for the instruction of the public.

The House voted to authorize the Constitutional Revisions Committee to make necessary corrections in renumbering of sections as required by the adoption of these amendments.

James Stuckey of Pulaski County, Chairman of a Special House Committee to investigate liability of unincorporated pharmaceutical companies in Arkansas, reported for his committee as follows:

"Your committee chairman discussed the problem of liability of the Pharmaceutical Companies not incorporating in the State of Arkansas with several lawyers, and obtained, as might be expected, contradicting opinions.

The lawyer for the State Medical Society, Mr. Gene Warren, felt that these companies doing business, but not incorporated in the state, should be required to incorporate and register their products. He felt that this should be a part of a more up-to-date Pure Food and Drug Law. He did not feel that the past legislative assembly was an appropriate time to submit such a bill, as several other more pressing problems regarding the medical profession were under consideration. He did feel that such a law was desirable, and should be drawn up and presented, but he also thought that a certain amount of ground work within the Society itself was necessary before it is submitted. He felt that this problem should be discussed among members of the society so that they could familiarize themselves with it and devise a unified plan of action to present before the legislators in the near future.

Opinions from other lawyers were that any company that did business in Arkansas, and had representatives here, were actually liable for any deficiencies in their products. The laws apparently are not explicit on this point, and should certainly be made more so. They also agreed that the Pure Food and Drug Law would be the best place for such a requirement.

Recommendations of this committee are that an up-to-date Pure Food and Drug Law be drawn up by the Society and submitted to the legislature in the near future."

Upon the motion of Verser and Millwee, the House voted to instruct our attorney to further study the problem and to formulate a Pure Food and Drug Act for Arkansas and submit it to the Council for consideration and referral to the Medical Legislation Committee.

George Burton, Union County Delegate, introduced a resolution from the Union County Medical Society opposing routine immunization of all persons. The resolution was referred to Reference Committee Number 1.

Speaker Hyatt announced that vacancies occur on the Arkansas State Board of Health in the Third, Fifth and Sixth Districts. Shuffield pointed out that the Governor did not have nominees for the First and Fourth Districts and that the Society should submit to the Governor nominees for the following congressional districts: First, Third, Fourth, Fifth, and Sixth. The Speaker then designated a time and place for meetings of members from those districts to select nominees to fill the vacancies.

Speaker Hyatt also announced that a vacancy occurs on the State Medical Board from the sixth congressional district and designated a time and place for a meeting of the members from that congressional district to select a nominee for the vacancy.

Delegates from the various councilor districts held meetings on the floor and selected the nominating committee as follows: First District, Charles G. Swingle; Second District, O. J. T. Johnston; Third District, Vance J. Crain; Fourth District, H. T. Smith; Fifth District, George Burton; Sixth District, James W. Branch; Seventh District, Lon Reed; Eighth District, Wm. A. Snodgrass; Ninth District, Ross Fowler, and Tenth District, C. C. Long.

By motion of Kolb and Edwards, the House adjourned at 7:35 p. m.

FIRST GENERAL SESSION

Monday, April 13, 1959, 8:30 A. M.

Main Dining Room, Goldman Hotel

The meeting was called to order by President Louis K. Hundley at 8:30 a. m. The invocation was given by Father Tom Walsh of the Immaculate Conception Church, Fort Smith. President Hundley addressed the Society as reported on page one. The scientific session, with C. R. Ellis, presiding, proceeded as follows:

"Cutaneous Reactions to Some Newer Drugs," Harold O. Perry, Rochester, Minnesota;

"Human Factors in Space Flight," Lt. Col. George R. Steinkamp, Randolph AFB, Texas;

"Clinical Recognition of Dissecting Aneurysm," I. Frank Tullis, Memphis, Tennessee;

"The Evaluation of Permanent Impairment of the Extremities and Back," J. E. Markee, Durham, North Carolina;

"Diagnosis and Treatment of Hypotension Occurring During Anesthesia and Surgery," Karl Erwin, Dallas, Texas

SECOND GENERAL SESSION

Monday, April 13th, 1959, 1:10 P. M.

Main Dining Room, Goldman Hotel

Robert H. Atkinson, vice-president, presided, presenting the scientific movie "Human Gastric Function" and the following scientific program:

"Vaginal Bleeding at or Near Menopause," Conrad G. Collins, New Orleans, La.;

"Radiation Therapy for Carcinoma of the Breast," Hugh F. Hare, Los Angeles, California

"Management of Patients with a Hearing Impairment," Howard House, Los Angeles, Calif.;

"Third Party Payment for Medical Care," Frank C. Coleman, Des Moines, Iowa;

"Recent Advances in Antibiotic Therapy in Pediatrics," Harris D. Riley, Oklahoma City, Okla.

MONDAY EVENING

April 13th

On Monday evening, April 13th, chartered buses carried members and their guests to Hardscrabble Country Club where an excellent buffet and cocktails were served. Music was furnished by professional entertainers. The unusually fine foods made this an outstanding event of the meeting.

FINAL GENERAL SESSION

Tuesday, April 14th, 1959, 8:25 A. M.

Main Dining Room, Goldman Hotel

The meeting in the Main Dining Room of the Goldman Hotel opened at 8:25 a. m. with the showing of the movie "Recognition and Management of Respiratory Acidosis." The General Session was called to order by Paul Ledbetter. The scientific program followed:

"Hip Conditions—Early is too Late," Allen F. Voshell, Baltimore, Maryland;

"Present Status of Leukemia," William Dameshek, Boston, Massachusetts;

"Urological Problems in Children," Edgar Burns, New Orleans, Louisiana;

"Some Common and Uncommon Problems in Biliary Surgery," Kenneth W. Warren, Boston, Mass.

MEMORIAL SERVICE

Louis K. Hundley, President, presided at a Memorial Service honoring members who had passed away during the year. The invocation was given by The Reverend Fred G. Roebuck, First Methodist Church, Fort Smith.

Mrs. Gordon Oates, President of the Woman's Auxiliary, read the names of the deceased auxiliary members:

Mrs. T. W. Hardison, Morrilton
Mrs. O. J. T. Johnston, Batesville

President Hundley read the names of the deceased members of the Society:

L. C. Barnes, Hamburg, October 4, 1958
N. B. Burch, Hot Springs, October 13, 1958
Samuel G. Daniel, Marshall, October 1, 1958
Hogan A. Dew, Warren, May 12, 1958
B. W. Duncan, Waldron, September 20, 1958
N. E. Fraser, Conway, December 21, 1958
Q. R. Galloway, Alma, January 29, 1959
Fred J. Gray, Jr., Little Rock, May 7, 1958
S. M. Graves, Clarksville, February 1, 1959
L. H. Lanier, Texarkana, November 21, 1958
A. A. Little, Texarkana, April 30, 1958
Hugh F. Mayfield, Huttig, July 30, 1958
E. C. McMullen, Pine Bluff, March 9, 1959
T. T. Ross, Arkadelphia, January 1, 1959
W. J. Sheddan, Osceola, July 24, 1958
A. L. Spain, Letona, August 24, 1958
E. J. Stroud, Jonesboro, March 16, 1959
H. B. Thompson, Fort Smith, November 24, 1958
G. G. Woods, Huntington, June 8, 1958

The Memorial Address was given by Dr. Rodger C. Dickinson, DeQueen:

Wives and brothers: You have just heard the names of the most recent of us to join our medical heritage. They still serve with us today as they did yesterday.

Yesterday they served with us in the everyday practice of medicine. Today they furnish the foundation on which we stand.

A sprout shoots up, a tree is formed, the tree falls, and another sprout arises. Obviously, life is a continuous process. It started eons ago—It goes on through eternity.

This objective view is not satisfying to us. We are constrained to consider life in its individual units. Life may be eternal, but our individual lives are definitely limited. We come, we tarry, we go. In fact all we can be sure of is the certainty of the present, our memories of the past, and our hopes of the future.

The present is the only time in our life that we control. The present is the only point of perspective we have.

Today is our day. The only day we have for sure. Today we may do our work. Today we may review our past. Today we may hope for our future.

Today, as we review our past, we know it is a day of thanksgiving. A day of counting our blessings.

From our past we get: Our position, our job, our methods, our practice, our ethics, in fact, about all we have. Today we are gathering harvest from seeds planted many years ago. From seeds planted in our own life time, we have to mention a few—Surgical treatment of the heart,

antibiotics, prevention for small pox, Diphtheria, Tetanus and Polio, better childhood care and many others.

From our recent kin, the ones who have departed in the past year, we have: (1) A harvest of memories that we may treasure forever, (2) Examples that we may emulate with pride, (3) Improvements in the practice of medicine, (4) A loftier position, (5) A greater devotion to our work, (6) A greater love of mankind and most important of all, (7) Their unfinished work.

We thank the Lord for these lives he has given us.

So much for our past; we still have today. Our day. What are we going to do with it? Our opportunities for services are much greater than they have been for anyone else. We have been placed in the threshold. We can do more work, save more lives, give more comfort than it has ever been possible before. Thanks to a harvest planted by someone else.

We have our tools: "Lord, give us our work and the strength to do it."

And now to our future.

Our collective future seems assured. It is fortified by our memories of the past. For;

As long as the human race has existed someone has had to bind the wounds, heal the sick, and comfort the afflicted, and it seems reasonable to assume that as long as the human race lasts the practice of medicine will continue.

And we are certainly on the eve of astounding discoveries and improvements that will help us to do a much better job in the future.

I feel certain that many of us sitting here today will see that dreaded killer, cancer, brought to bay.

And now for our individual future; it is certainly uncertain.

But we pray that for tomorrow, when our work is done, that we be granted our irresistible desire to follow our brothers to paradise.

And for me:

I cannot think of paradise a place—
Where men go idly to and fro,
With harps of gold and robes that shame the snow;
With great wide wings that interlace,
When ere they sing before the Master's face—
Within a realm where neither pain nor woe,
Nor care is found; where tempest never blow;
Where souls with hopes and dreams may win no race.
Such a Paradise were but a hell to me
Devoid of all progression, I should rot,
Or shout for revolution wide and far.
Better some simple task a spirit free
To act along the line of self forgot
Or help God make a blossom of a star—
It is here our departed we expect to find,
Dispensing their services to human kin.
Until then, they will be forever enshrined,
Living in our hearts and minds.

Mr. Paul Sandahl sang and benediction was pronounced by Rev. Roebuck.

TUESDAY AFTERNOON

April 14th

There was no general session on Tuesday Afternoon, April 14th; specialty meetings were held as follows:

The E. E. N. T. Section met at St. Edward Nurses' Home with J. W. Smith, Howard House, Stanley R. McEwen, and Tullos O. Coston as guest speakers.

A meeting of the Academy of Internal Medicine was held at the Goldman Hotel. Thomas Jansen and William Dameshek presented papers. Drs. Dameshek, F. Douglas Lawrason, S. William Ross, and F. Stanley Porter participated in a panel discussion on Hematologic Problems.

Obstetricians and Gynecologists met at the Goldman Hotel. Guest speaker was Conrad G. Collins of New Orleans.

The Section on Radiology met at the Park Plaza Cafeteria and heard a discussion by Hugh F. Hare of Los Angeles.

The Pediatricians and Urologists met in a combined meeting at the Goldman Hotel with guest speakers Harris D. Riley and Edgar Burns.

A surgery meeting was held at the Ward Hotel. Kenneth W. Warren of Boston, Massachusetts, presented a paper on pancreatic surgery.

Dr. Allen F. Voshel was guest speaker at the Arkansas Orthopedic Society meeting held in the Ward Hotel.

The Section on Anesthesiology met in the Goldman Hotel with Karl Erwin of Dallas, Texas.

Tour of Sparks Manor

Tuesday Afternoon members of the Auxiliary and the Medical Society made an inspection tour of the recently dedicated million dollar Sparks Manor, a geriatric home which is attracting nationwide attention.

TUESDAY NIGHT

April 14th

Tuesday night members walked the short distance from the hotel to the Masonic Temple banquet hall for the annual banquet and installation of the president.

Dr. Wright Hawkins served as master of ceremonies in the place of Dr. Robert

J. Thompson, who had suffered an accident on the golf course. Dr. Ralph Downs, Chairman of the Golf Tournament Committee, awarded Dr. Thompson a special award as the "most clumsy" golfer in the tournament. Other winners were: Low Gross, Ellis Gardner of Russellville; Low Net, Gordon Oates of Little Rock; Least Putts, John Wood of Mena.

Randolph Ellis introduced President Louis K. Hundley who spoke briefly thanking all of the members and committees for their assistance to him during his year as president. Dr. Fount Richardson and Dr. Euclid Smith escorted President-elect James M. Kolb to the platform where Dr. Hundley administered the oath of office. Dr. Kolb addressed the group as follows:

Mr. Toastmaster, Distinguished Guests, Ladies and Gentlemen:

I would like to give you a brief outline of my proposed program for this next year. Part of it has already been put in action. It consists of three parts:

First: It shall be my chief endeavor to get more of our members to take an active part in our Society. It has been said many times that "a chain is just as strong as its weakest link." This is so with our society. We have less than 10% of our membership of 1,248 doctors taking part as officers and Committee members filling the 168 positions our Constitution and By-Laws calls for. I started three months ago writing members, trying to fill these positions with doctors who would work. There are still several vacancies. If any of you will volunteer, please let Mr. Schaefer or myself know and we will find something for you to do. We should have at least a 50% active participation, on a district and State level, to carry our society forward, to help us fight off government encroachment and socialized medicine. I warn you, it is later than you think. "United we stand, Divided we Fall."

Second: I have proposed to the Council, who endorsed it, passed it on to the House of Delegates, who approved it at the meeting last Sunday afternoon, that the members of the Arkansas Medical Society enroll in a group policy with the Arkansas Medical & Hospital Service, (our Blue Cross-Blue Shield Plan) which they have offered us, after negotiating for the past two months.

There is a policy available for the doctor and his family. A $25.00 deductible, comprehensive type, with or without major medical coverage. There is also available a similar policy covering the doctor's office employees and their dependents. It is necessary that we have 60% of our members take this coverage to get the benefits of these policies at a reduced rate, and for 50% of our employees to get their coverage. This is available now. We have about 48% coverage in first one group or the other, including a few large groups, five to ten member groups, and single policy holders throughout the state. By uniting these into one single group, we can get the same or better benefits, at the same or lower cost depending on the size of a group you are now in. All cost for the change over will be borne by the Blue Cross-Blue Shield plan. I urge you to take this coverage.

Third: Tonight I am making public, for the first time, my third project; In the morning I shall propose to the House of Delegates of the Arkansas Medical Society that they form a "Medical Education Foundation for Arkansas." This recommendation is made with the full realization that there is available such an organization nationally but it is my opinion, borne out by statistics in our own state and other states, that persons, groups, companies, corporations and etc., will not give as freely to such organizations as they will to our own foundations. An example is the success of the Foundation for Advancement of Independent Colleges of Arkansas, administered by Col. Cort. The Foundation, if approved by your House of Delegates, would be incorporated, a Board of Trustees would be elected, with the Executive Secretary of the Arkansas Medical Society, at present, our able, energetic, Mr. Paul Schaefer, as the Executive Director.

The purpose of the Foundation would be to: (1) Receive gifts of money, bonds, wills, property, or any other item of value; (2) to administer, in a business like fashion, such property or funds; and (3) to disburse from its earnings or gifts, monies to Individuals, Companies, or Corporations engaged in Medical education or Medical research, as may be seen fit by a majority of the said Foundation.

I would like to state that this is not a new or untried program. It is only new to the Arkansas Medical Society. Such an organization has been active in Texas three and one-half years. This past year alone grants were made to five different schools for a total of $25,000.00. The report of their Executive Director, Mr. Sloane Wingert, made at Amarillo, Texas, on April 2, 1959, states in part as follows:

> "Headed by doctors, dentists, scientists, educators, and business leaders of unquestioned repute, the foundation has been established to attract to Texas the type of funds necessary to support modern and urgently needed research in the medical and dental sciences. Such research, in addition to saving lives, suffering, and dollars in productive work, will promote high standards of education in the centers where it is carried on . . . 'The Medical Research Foundation of Texas has established itself on a firm footing in an area in which action has been needed.
>
> It promises much for the future, but only if the institutions it seeks to serve, the graduates and friends of those institutions, and the public which finally will be the chief beneficiary do their part to make its dreams come true.' "

In closing may I thank you for this great honor you have bestowed upon me. I shall strive to uphold the dignity, honor, and trust of this position, being at all times at your beck and call, and to strive to promote the growth of our

organization to new and better usefulness in our State and Nation.

Dr. Kolb then presented to Dr. Hundley a bronze plaque commemorating his service to the State of Arkansas and to the medical profession.

After the banquet the members and their guests repaired to the Eagles Hall to dance until 1:00 a. m.

FINAL SESSION
HOUSE OF DELEGATES
April 15th, 1959

Speaker Hyatt called the House of Delegates to order at 10:00 a. m. on Wednesday, April 15th, in the Colonial Room of the Goldman Hotel, Fort Smith. He requested H. W. Thomas of Dermott to give the invocation.

Secretary Shuffield called the roll of delegates. The following delegates and members seated as delegates by action of the House were present:

ARKANSAS, T. S. Van Duyn; BAXTER, Ben N. Saltzman; CHICOT, H. W. Thomas; CLARK, Eli Gary; CRAIGHEAD-POINSETT, Charles G. Swingle; CRAWFORD, A. E. Thorne; CRITTENDEN, M. D. Deneke; CROSS, Vance J. Crain; DESHA, H. T. Smith; DREW, C. Lewis Hyatt; FRANKLIN, C. C. Long; GARLAND, Lon Reed, Ralph Patterson; HOT SPRING, C. R. Ellis; INDEPENDENCE, Charles Taylor; JEFFERSON, E. L. Hutchison, Charles W. Reid; JOHNSON, Guy P. Shrigley; LEE, E. C. Nowell; LOGAN, I. H. Jewell; MILLER, J. K. Laws; MISSISSIPPI, Eldon Fairley; NEVADA, C. A. Hesterly; POLK, David P. Hefner; POPE-YELL, Charles F. Wilkins, Jr.; PULASKI, Wm. S. Orr, Jr., Bill Dave Stewart, James W. Headstream, Walter G. Selakovich, Drew F. Agar, Edgar J. Easley, William A. Snodgrass, Joe Shuffield, T. D. Brown, Julian L. Foster; SEBASTIAN, L. A. Whittaker, Art Martin, Harley C. Darnall; SEVIER, Rodger Dickinson; UNION, George C. Burton, Sam Jameson; WASHINGTON, Fount Richardson, James Mashburn.

The following officers and councilors were present as members of the House of Delegates: President James M. Kolb, Secretary Elvin Shuffield, Past Presidents R. C. Dickinson, W. R. Brooksher, O. J. T. Johnston, Louis K. Hundley, T. D. Brown, Councilors Joe Verser, John P. Wood, Ross Fowler, Robert D. Jones.

The Chairman of the Credentials Committee, Randolph Ellis, reported that a quorum was present.

Wm. A. Snodgrass, Chairman of the Nominating Committee, presented the following slate of nominees:

FOR PRESIDENT-ELECT:
J. J. Monfort, Batesville
Gerald H. Teasley, Texarkana

FIRST VICE PRESIDENT:
Wright Hawkins, Fort Smith

SECOND VICE PRESIDENT:
John W. Dodson, Hot Springs

THIRD VICE PRESIDENT:
D. L. Owens, Harrison

TREASURER:
Sam Jameson, El Dorado

SECRETARY:
H. Elvin Shuffield, Little Rock

SPEAKER OF THE HOUSE OF DELEGATES:
C. Lewis Hyatt, Monticello

VICE SPEAKER OF THE HOUSE:
J. P. Price, Jr., Monticello

COUNCILORS—

First District: Councilor No. 1, (2 year term), Eldon Fairley, Osceola; Councilor No. 1, (1 year term), Joe Verser, Harrisburg.

Second District: Councilor No. 2, (2 year term), C. A. Archer, Jr., Conway.

Third District: Councilor No. 1, (2 year term), Fay B. Millwee, McCrory; Councilor No. 2 (1 year term), K. E. Beaton, Wynne.

Fourth District: Councilor No. 2 (2 year term), Thomas E. Townsend, Pine Bluff.

Fifth District: Councilor No. 1 (2 year term), George Burton, El Dorado; Councilor No. 2, (1 year term), J. L. Dedman, Camden.

Sixth District: Councilor No. 2 (2 year term), James W. Branch, Hope.

Seventh District: Councilor No. 1, (2 year term), J. W. Kennedy, Arkadelphia; Councilor No. 2, (1 year term), King Wade Jr., Hot Springs.

Eighth District: Councilor No. 2, (2 year term), Bill Dave Stewart, Little Rock.

Ninth District: Councilor No. 1, (2 year term), Stanley Applegate, Springdale; Councilor No. 2, (1 year term), Ross Fowler, Harrison.

Tenth District: Councilor No. 2, (2 year term), C. C. Long, Ozark.

DELEGATE TO AMA
Sam Jameson, El Dorado

ALTERNATE DELEGATE TO AMA
C. C. Long, Ozark

Upon the motion of Snodgrass and Brooksher, the House accepted the Report.

Speaker Hyatt asked for any nominations from the floor and John Wood nominated Karlton Kemp of Texarkana as Councilor Number Two from the Sixth District. There being no further nominations from the floor, Snodgrass moved, second by Burton, that all officers be elected by acclamation with the exception of the office of president-elect and Councilor Number Two from the Sixth District. Upon written ballot, Dr. J. J. Monfort received the majority of the votes for the office of president-elect. Upon the motion of Snodgrass and Kolb, Monfort was unanimously elected to the office of president-elect. Karlton Kemp was elected as Councilor Number Two from the Sixth District.

Speaker Hyatt announced the outcome of the election and requested immediate Past President Hundley to escort the new president-elect to the platform. President-elect Monfort briefly thanked the House of Delegates for selecting him for the office.

The Report of Reference Committee Number One was read by Chairman R. C. Dickinson:

Reference Committee No. One met April 13 and 14 and approved the following reports:
Committee on Constitution and By-Laws
Budget Committee
Committee on Senior Medical Day
Traffic Safety Committee
Arkansas State Advisory Committee to the Selective Service System
Committee on Aging
State Professional Relations Committee
First District Professional Relations Committee
Second District Professional Relations Committee
Third District Professional Relations Committee
Fourth District Professional Relations Committee
Sixth District Professional Relations Committee
Seventh District Professional Relations Committee
Eighth District Professional Relations Committee
Tenth District Professional Relations Committee
Delegate to AMA
Report of the Council
Executive Secretary's Report
Report of the Arkansas State Medical Board
Report of the Arkansas State Board of Health

Approve resolution by Dr. James Hawley for the appointment of an advisory committee to the State Rehabilitation Program.

Introduced the resolution commending Dr. Alfred Kahn for his outstanding work as editor of the Journal of the Arkansas Medical Society.

Upon the motion of Dickinson, second by Wood, the report was adopted by the House.

The report of Reference Committee Number Two was read by Wm. A. Snodgrass for Chairman H. T. Smith:

The committee acted on the following committee reports:

1. Committee on Cancer Control—approved
2. Committee on Rural Health—approved
3. Sub-Committee on Maternal and Child Welfare—approved
4. Sub-Committee on Industrial Health—approved
5. Sub-Committee on Tuberculosis—approved
6. Sub-Committee on Mental Health—approved
7. Sub-Committee on Liaison with State Board of Health—approved
8. Polio Advisory Sub-Committee—approved
9. Committee on Medical Education—approved
10. Sub-Committee on Postgraduate Education—approved
11. Sub-Committee on Liaison with Blue Cross Blue Shield—approved
12. Committee on Hospitals—approved
13. Committee on Arrangements for Annual Session—approved
14. Committee on Public Relations—approved

The Committee considered the following resolutions:

1. Union County Medical Society—recommend no action be taken
2. Resolution by Dr. D. E. White—recommend no action be taken
3. Resolution concerning Rehabilitation Commission—approved

Concerning the Union County Medical Society Resolution upon which the Reference Committee recommended no action, Chairman of the Council Verser briefly discussed action of the Council regarding the resolution.

Dr. Snodgrass then moved, second by Shuffield, that the Report of Reference Committee Number Two be accepted to include the remarks by Dr. Verser. House so voted.

Jameson requested that it be reflected in the minutes that the resolution concerning ethics which was introduced by the Union County Delegation was presented at the request of an individual physician and had not been officially adopted by the Union County Medical Society.

Chairman of the Council Joe Verser presented the following supplementary report of the Council.

The Council met on Sunday, April 12th, and transacted the following business:

1. Directed that a telegram be sent to H. King Wade, Sr., regretting his absence due to illness;

2. Referred a proposal for compulsory polio inoculation to the Pediatric Committee for study and recommendation to the Council;

3. Directed that the Society's delegates to the AMA attend a conference of the Joint Council to Improve Health Care of the Aged to be held in Washington immediately following the AMA convention in Atlantic City;

4. Elected Thomas E. Townsend as vice-councilor to fill the unexpired term of Calvin Simmons, who resigned.

5. Elected Henry Hearnsberger of Stephens to serve as a medical society representative on the Board of Trustees of Blue Cross-Blue Shield.

6. Nominated W. R. Brooksher to succeed himself on the State Cancer Commission.

7. Voted affiliate membership to the following physicians:

For reasons of retirement: George B. Alcott, Shelby Atkinson, Dewell Gann, Jr., H. A. Higgins, W. M. McRae, H. K. Carrington, H. M. Kitchens, J. T. Wood, Jesse D. Riley, Marion S. Craig, Sr., L. T. Evans, Paul Jeffery, A. V. Adams, J. E. Stevenson, Chas. F. Bloom, Joseph DeLaney, W. A. Fowler, Allan Gilbert, Frank Gordon, H. C. Dorsey, Howell Brewer, F. S. Tarleton, B. C. Middleton, W. H. Bruce, John P. Fergusson.

For reason of military service:

Oscar Gray, J. Harry Hayes, Jr., J. W. Hollis, William Threlkeld.

For reason of residency training: Paul L. Stuck, Duane E. Brothers, Orval E. Riggs, W. D. Sessoms, Frank McCutcheon, Charles N. Tarkington, Wm. K. Bell, Carl E. Hyman, W. T. Rainwater, G. K. Patton, L. K. Williams.

For reason of disability: Frank Norwood, J. H. Downs, H. L. Brown, T. E. Burgess, S. T. W. Cull, Bryce Cummins, J. Donald Hayes, Ralph A. Law, G. F. McLeod, Virgil L. Payne, C. A. Churchill.

8. Voted life membership for the following: William B. H. Pool.

9. Voted to oppose any increase in the number of persons eligible for care under the Military Dependents' Medical Care Program;

10. Requested the Insurance Committee to investigate proposed federal legislation for insurance for federal employees.

11. Granted a charter to the newly organized Cleburne County Medical Society.

12. Referred back to the Liaison Committee with Blue Cross-Blue Shield a proposal to increase the membership of that committee;

13. Adopted a resolution praising Congressman Mills for his actions in connection with Forand Legislation.

14. Adopted a resolution praising Senator McClellan for his service to the country as a citizen and as a United States Senator.

15. Voted to accept the recommendation of the Committee on Medical Education on the establishment of a course on medical ethics at the University of Arkansas Medical Center.

16. Endorsed the action of the University Trustees in establishing an admission policy at the University Hospital in Little Rock.

17. Approved and referred to the House of Delegates a proposed health and accident insurance policy for medical society members and their employees presented by Blue Cross-Blue Shield.

The Council met on Monday, April 13th, and transacted the following business:

1. Directed the Executive Secretary to withhold the amount of disallowances and overpayments under the Medicare program from any future payments to the respective physicians.

2. Heard and approved a discussion by Mr. Warren regarding legal problems confronting the Society and recent accomplishments in that field.

The Council met on Tuesday, April 14th, and transacted the following business:

1. Directed the Executive Committee to consider the matter of employment of a public relations man and report at a later meeting.

The Council met on Wednesday, April 15th, and transacted the following business:

1. Heard report from Elvin Shuffield of the Executive Committee decision to investigate possibility of employing a public relations firm or public relations man.

2. Dr. Kolb presented a plan for the establishment of a Medical Education Foundation of Arkansas. Upon the motion of Ellis and Wood, the Council voted to appoint a committee composed of J. M. Kolb, Fount Richardson, and Randolph Ellis empowered to draw up a constitution and by-laws and proceed with other necessary preparations for the establishment of the foundation.

3. John Wood, on behalf of the Miller-Bowie County Medical Society, invited the Council to hold its next meeting in Texarkana. The Council voted to accept the invitation.

4. Voted to recommend to the State Board of Health that the program of immunizations being given only at certain definite times be restated and enforced.

Upon the motion of Verser and Jameson, the House accepted the report.

Snodgrass requested that affiliate membership also be approved for Doyle Fulmer of Pulaski County. Speaker Hyatt suggested that the request be presented to the Pulaski County Medical Society for action and referral to the Council and House of Delegates.

Brooksher moved, second by Kolb, that telegrams be forwarded to Past Presidents Sam J. Allbright and H. Fay H. Jones expressing regret that they were unable to attend the convention.

Bill Dave Stewart, Chairman of the Resolutions Committee, presented a resolution of appreciation to those who helped make the convention a success. Upon the motion of Stewart and Kolb the resolution was unanimously adopted.

R. C. Dickinson presented a resolution praising the work of Alfred Kahn as Editor of the Journal of the Arkansas Medical Society. Upon the motion of Dickinson and Stewart, the House unanimously adopted the resolution.

Dickinson then presented the following proposed amendment to the Constitution and By-Laws.

Section 5, Chapter 9, By-Laws, amended to add thereto: "No persons shall be eligible for membership in the Arkansas Medical Society or of any county medical society who knowingly participates in, or accepts benefits from, any plan of practice of medicine which denies or limits to the patient the free and independent selection of his or her physician."

Upon the motion of Ellis and Van Duyn, the proposed amendment was referred to the Constitutional Revisions Committee.

Mr. Schaefer called the attention of the House to the loyal and efficient service of Miss Leah Richmond, his secretary and assistant in the headquarters office who was accorded an enthusiastic round of applause by the House.

Upon the motion of Brown and Burton, the House voted to use the same schedule for the House of Delegates meetings at the 1960 Annual Session.

Joe Verser introduced a resolution in appreciation of Elvin Shuffield's work as chairman of the Legislative Committee. Verser moved, second by Kolb, the adoption of the resolution. Brooksher moved amendment to motion to make it a standing vote.

Verser introduced a resolution expressing thanks to Colonel T. H. Barton for his contribution for medical research. Upon the motion of Verser and J. Shuffield, the House unanimously adopted the resolution.

Upon the motion of Elvin Shuffield, second by Kolb, the House adopted the form of the Barton resolution as a standard expression of thanks for contributions to medical education in the State.

Randolph Ellis discussed the desirability of having open meetings of the reference committees and moved that the Speaker, Vice Speaker, and Mr. Schaefer be authorized to study the idea of having open hearings of the reference committees after the first session of the House of Delegates next year and put it into effect if they find it feasible. Upon second by Jameson, the House so voted.

Ben N. Saltzman, Baxter County Delegate, introduced the following proposed amendment to the Constitution:

Article IV, Section 2, be amended to add thereto: "Any physician who has earned the regard of his colleagues to the extent that he has been carried on the rolls of a county medical society since 1950, has maintained regular attendance at meetings, but is not a member of the Arkansas Medical Society, will be entitled to membership in the State Society."

Upon the motion of Richardson and Hundley, the amendment was referred to the Committee on Constitutional Revision.

Upon the motion of Kemp and Gary, the House approved the following nominees submitted for vacancies occurring on the Arkansas State Board of Health:

First District—Horace C. Barnett, Jonesboro; Charles G. Swingle, Marked Tree; Eldon Fairley, Osceola

Third District—D. W. Goldstein, Fort Smith; John W. Dorman, Springdale; D. L. Owens, Harrison

Fourth District—Warren S. Riley, El Dorado; John H. Wilson, Magnolia; Perry Dalton, Camden

Fifth District—John McCollough Smith, Little Rock; C. Ray Williams, Morrilton; C. A. Archer, Jr., Conway

Sixth District—C. Lewis Hyatt, Monticello; J. B. Holder, Monticello; George Wynne, Warren

Upon the motion of Reed and Verser, the House approved the nomination of Frank Burton, Hot Springs, for sixth congressional district vacancy on the Arkansas State Medical Board.

Wm. S. Orr, of Pulaski County, extended an invitation for the Society to hold its 1961 Annual Session in Little Rock. Upon the motion of Verser and Kolb, the House unanimously accepted the invitation.

Jameson spoke briefly regarding the standard insurance claims forms and announced that information regarding the forms would be mailed to members of the society as soon as possible.

The House adjourned at 11:20 a. m.

REGISTRATION

Physicians	380
Medical Students, nurses, and other guests	23
Exhibitors	77
	480

SUPPLEMENTARY REPORT OF THE INSURANCE COMMITTEE

SAM JAMESON, Chairman

In addition to the report published in the March 1959 issue of the Journal of the Arkansas Medical Society, the Insurance Committee wishes to make this supplementary report.

1. Accident and Health Insurance Laws. The revised Insurance Code is now law, along with two amendments sponsored by the Arkansas Medical Society. One amendment provides for written examination and examination of character prior to licensing of agents selling accident and health insurance. The other instructs the State Insurance Commissioner to prescribe minimum benefits and standards which all accident and health insurance policies must include. The Insurance Committee intends to work with the State Insurance Commissioner, making recommendations as to these minimum benefits and standards.

2. Group Life Insurance for Arkansas Medical Society. The Council of the Arkansas Medical Society has approved the group life insurance program proposal by Northwestern National Life Insurance Company, and the enrollment will begin on April 13.

3. Accident and Health Insurance for Arkansas Medical Society. The Insurance Committee has approved an excellent $25.00 deductible group accident and health plan proposed by Blue Cross-Blue Shield, including basic coverage and major medical coverage, for both physicians and their families and employees and their families. This proposal, if approved, will be immediately available to all members of the Arkansas Medical Society.

4. Senior Citizen Coverage. The Insurance Committee wishes to commend Blue Cross-Blue Shield for its efforts in providing coverage for senior citizens above the age 65. Although it was only in December 1958 that the House of Delegates of the AMA recommended that constituent component medical societies, as well as physicians everywhere, expedite immediate development of an effective voluntary health insurance or prepayment program for the group over 65, it should be noted that the Arkansas Blue Cross-Blue Shield program has been offering protection to the senior citizens of Arkansas since June 1957. Although this program is available only two months out of the year at the present time, Blue Cross-Blue Shield is working as rapidly as possible to bring about proposals to the House of Delegates of the Arkansas Medical Society and to Arkansas hospitals so that a full service plan for the protection of senior citizens can be made available in the State. It is anticipated that this type protection will be available and will be offered to the public at least by June of this year.

Certain Commercial companies are to be commended for recognizing the problem of senior citizen coverage, and now making coverage available for this particular segment of our population.

The Insurance Committee wishes to go on record as recognizing the fact that Congressman Wilbur Mills has acted in the best interest of the free enterprise system, without federal interference, in deferring hearings on the Forand Bill, as very definite progress has already been made in providing protection for senior citizens with low incomes. By his action, Congressman Mills has demonstrated his confidence in the medical profession and the health insurance industry, and the entire medical profession and insurance industry are genuinely appreciative.

5. Recommendation to Blue Cross-Blue Shield. Although the Insurance Committee has no direct communication with Blue Cross-Blue Shield, as this is taken care of by the Liaison Committee with Blue Cross-Blue Shield, the Insurance Committee would like to point out that most abuses by certain health and accident insurance companies involve patients with individual policy coverage, many in the senior citizen segment. Many complaints have reached the Insurance Committee in regard to this matter, and upon informing these patients that Blue Cross-Blue Shield is available, it is invariably reported that they do not know how to get in touch with the "agent" of Blue Cross-Blue Shield. In order to establish more direct communication with individuals in all communities needing Blue Cross-Blue Shield coverage, and the reliability of such coverage, it is recommended that Blue Cross-Blue Shield take immediate steps to place full time representatives in all sections of the state, and seriously consider door-to-door campaigns such as other companies have done selling individual coverage.

In regard to the service plan which is now under discussion and consideration for senior citizens, it is suggested that Blue Cross-Blue Shield

consider using a relative value schedule such as the California schedule, or the Medicare schedule in Arkansas, for the basis of its schedule of fees, decreasing these fees by a reasonable amount, allowing a fair remuneration for the doctor and yet not making the fees so high that premiums for such coverage would discourage widespread enrollment. Furthermore, if such a plan is developed, it is recommended that negotiations be made with the Welfare Department of the State of Arkansas to provide such coverage for all welfare recipients. This could be accomplished by a contract with the State of Arkansas, with premiums being paid by the Welfare Department to Blue Cross-Blue Shield in lieu of direct payments to hospitals.

SUPPLEMENTARY REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

JACK KENNEDY, Chairman

The Medical Education Committee met at the Goldman Hotel in Fort Smith from noon until 2:00 Sunday, April 12th. There was full discussion of the problem of teaching medical ethics to the junior and senior students. Motion was made and passed that the Committee approve the plans for this year which include a special day set aside during the first week of June for a meeting of all preceptors and preceptees. At this meeting, the general purposes and functioning of the preceptorship will be explained and special emphasis will be made by different speakers, including one speaker from the AMA, on the content of proper medical ethics.

It is felt by the Committee that the principal share of teaching of medical ethics should be borne by the preceptor and should be carried out during the preceptorship. It is felt that doctor-patient relationships with the student are best observed with the practical approach to proper medical ethics in doctor-patient relationships and in relationships between different physicians during the preceptorship. It is very difficult because of the curriculum to get formal lectures that would serve this purpose well.

It is suggested that brochures covering the principal points of medical ethics be sent to the preceptors and preceptees prior to the time that the student serves his preceptorship. It is further suggested that at the end of the preceptorship, the preceptor make a written report to the school concerning the understanding of medical ethics by the preceptee.

Dean Lawrason stated that the importance of medical ethics as practiced at the Medical Center will be called to the attention of all the faculty, residents, and intern staff, in order that special care be taken by the Medical Center Staff in the handling of referred patients. Dean Lawrason expressed willingness to cooperate in every way possible in the promotion of the teaching and practice of medical ethics among the faculty and students during the student's tenure at the Medical Center.

BLUE SHIELD PROGRAM FOR PREPAID MEDICAL CARE COVERAGE FOR THE AGED

(Blue Shield Medical Care Plans Policy Letter dated January 26, 1959)

As indicated in our December 8 Policy Letter, P-58-25, special committees of the Board have been studying and evaluating all available data pertaining to the above subject.

In keeping with the intent of the American Medical Association's resolution of December 4, 1958, the objective of these committees was twofold:

1. To develop a practical pattern of benefits designed to meet the special medical needs of persons over 65.
2. To suggest a level of medical compensation for those benefits which would permit rates commensurate with the "modest resources or low family income" of persons in this age category.

Certain obvious facts were recognized in approaching these objectives. Utilization and cost studies clearly indicated that the incidence of medical care for this age group is greater and, consequently, costlier. But these studies also produced evidence that the problem is not as severe as had been anticipated. It also became clear that the provision of adequate in-hospital medical care must be a part of any program offered to this segment of our population.

These studies show that although the incidence of surgery increases in certain categories, other high cost and high incidence procedures, such as tonsillectomies, appendectomies, etc., common in the younger age group, can be minimized. Obstetrical benefits should also be excluded from the program for obvious reasons. It is the consensus that pre-existing conditions will have to be covered after a reasonable (6 months) waiting period.

After thorough consideration of these and other factors, your committees recommend that the following benefits can be provided with reasonable premium rates to those over 65 with "modest resources or low family income".

1. Benefits
   (a) Surgery wherever performed
   (b) Anesthesia
   (c) In-hospital medical care for 120 days
   (d) Diagnostic x-ray in the hospital; in the hospital out-patient department or doctor's office if hospitalization follows.
   (e) Radiation therapy
2. Income Ceilings
   In considering the question of "modest resources or low family incomes" the problem of adapting this to income ceilings arose. It is suggested that income ceilings could be flexible according to the economic level of the area served with a possible range of $1,500 single and $2,500 husband and wife, to $2,000 single and $3,000 for the combined incomes of husband and wife.

In determining a level of compensation for services rendered which would produce a rate or premium charge within the means of these people, the actuarial committee used a relative value schedule similar to that in effect in California, Michigan and other areas, placing a $1.50 unit value on surgery and anesthesia. In-hospital medical care for scheduled at $5 for the first day, $3 per day for the next 19 days, and $2 per day for the remainder of the 120 days. Diagnostic x-ray and radium therapy were rated on the basis of $2 per unit value.

This schedule produced an average rate of $2.15 per person per month, however, the committee felt that this charge should vary somewhere between $1.75 and $2.25 depending on utilization and the medical practice in the local area.

At the request of the Committee on Insurance and Prepayment Plans of the A.M.A. Council on Medical Service, we met with this group on January 17, outlined the program and solicited their suggestions and comments. The reaction of the committee was most helpful and encouraging. They took action approving the scope of benefits, as outlined, as a suggestion for consideration by the Plans, and further voted to send letters to all constituent and component medical societies urging them "to give earnest consideration to implementing programs set forth by Blue Shield and other groups which would carry out the intent of the report adopted by the A.M.A. House of Delegates (December 1958) on voluntary health insurance or prepayment coverage for the aged."

We are aware that many Plans have already done a considerable amount of background work on this problem, and we now urge the speedy development of a specific program with benefits, rates, and income levels patterned after the above recommendations for presentation to and approval by your sponsoring medical society.

WE RE-EMPHASIZE THAT THIS IS A SPECIAL PROGRAM FOR THE AGED AND TO BE EFFECTIVE THERE MUST BE A HIGH DEGREE OF UNIFORMITY OF ELEMENTS OF COVERAGE IF IT IS TO BE LABELED AS SUCH.

We would appreciate being kept advised of your progress including any obstacles with which you may be confronted. We have been assured of cooperation and assistance by the Committee on Insurance and Prepayment Plans, and of course our staff is available to help wherever possible.

RESOLUTIONS

DR. ALFRED KAHN, JR.

BE IT RESOLVED that the Arkansas Medical Society go on record as extending to Dr. Alfred Kahn its deepest appreciation and heartiest congratulations for his splendid accomplishments in making the Journal of the Arkansas Medical Society one of the outstanding medical publications of the United States.

DR. ELVIN SHUFFIELD

WHEREAS, Dr. Elvin Shuffield has demonstrated his loyalty and devotion to the medical profession of Arkansas by giving liberally and unselfishly of his time and effort in accomplishing a great success in our legislative program,

NOW, THEREFORE, BE IT RESOLVED, that the Arkansas Medical Society express to Dr. Elvin Shuffield its gratitude and affection for his tireless efforts and its congratulations for a job well done.

COLONEL T. H. BARTON

WHEREAS, Colonel T. H. Barton, in his generosity and informed concern for further progress of the State of Arkansas, medical research, and the welfare of all people, has seen fit to contribute $600,000 to the cause of medical education, and

WHEREAS, the elimination of disease and suffering is dependent upon basic research and continuing education made possible by such magnificent assistance,

WHEREAS, such gifts, as the fruits of free enterprise and in keeping with American tradition, help maintain a system of medical education independent of federal controls.

THEREFORE, BE IT RESOLVED, that the Arkansas Medical Society commend and express its appreciation to Colonel Barton for his generosity and foresightedness in making this fund available.

SENATOR JOHN L. McCLELLAN

WHEREAS, Senator John McClellan has devoted most of his life to public service; and

WHEREAS, he has fearlessly fought for the ideals that are consistent with the American system of free enterprise; and

WHEREAS, he has diligently and faithfully served the State of Arkansas; and

WHEREAS, he is to receive the award of the American Society of Good Government, thus again bringing credit to Arkansas and himself for this justly deserved award;

BE IT RESOLVED that the Arkansas Medical Society express its appreciation to Senator

McClellan for his outstanding work as a citizen and as a United States Senator and congratulate him upon this well-earned recognition.

CONGRESSMAN WILBUR D. MILLS

WHEREAS, Congressman Wilbur Mills has recognized the problems in medical care of the senior citizens of our country; and

WHEREAS, there has been a strong effort on the part of certain elements to include this segment in a government-paid medical care plan paid for by the taxpayers; and

WHEREAS, Congressman Mills has recognized the fact that the medical profession and the insurance industry have made very definite strides in providing coverage for this age group and, consequently, has wisely deferred hearings on legislation to impose this added cost on the Social Security system;

BE IT RESOLVED that the Arkansas Medical Society express its sincere appreciation to Congressman Mills for his wise approach, and his faith in the medical profession and private insurance industry to successfully solve this problem.

FUND RAISING OF VOLUNTARY HEALTH ORGANIZATIONS

WHEREAS, A major contribution is being made to medical research and the general enhancement of educational programs for better health in Arkansas by the state and local affiliates of our National voluntary health agencies; and

WHEREAS, The objectives of these principal voluntary health agencies are desirable; and

WHEREAS, It is firmly believed that the continued operation of these organizations for their established and intended purpose is wholly dependent upon retaining their identities and independence. Now, therefore, be it

RESOLVED, That the House of Delegates of the Arkansas Medical Society commend these groups on the splendid contributions they are making to the health of the people of Arkansas; and be it further

RESOLVED, That the House of Delegates approve and support the position of independence in fund-raising taken by the democratically constituted Boards of Directors of the major voluntary health agencies and that they not be forced to change their present method of operation in raising funds and employing these funds in carrying on their programs.

REHABILITATION COMMITTEE

WHEREAS, the last appropriation by the State Legislature, plus matching money by the Federal Government, totals approximately $3,500,000; and

WHEREAS, the Rehabilitation Program is directed by lay personnel and under the State Department of Education with but minimal medical orientation; and

WHEREAS, the number of Senior citizens of our state is increasing in number requiring rehabilitation services; and

WHEREAS, surveys are being conducted nation-wide as to our rehabilitation resources and rehabilitation needs; and

WHEREAS, we do not have a standing Arkansas Medical Society Committee on Rehabilitation;

BE IT THEREFORE RESOLVED, that the House of Delegates take cognizance of this need and direct the President of the Arkansas Medical Society to appoint a Committee on Rehabilitation.

APPRECIATION

RESOLVED, that the Arkansas Medical Society and its members, jointly and individually are deeply grateful to all of those who have by their thorough planning and exhaustive efforts made this the 83rd Annual Session a most pleasant and inspiring occasion.

Among those to whom we feel particularly indebted:

(1) The Committee on Arrangements whose timeless efforts are manifest by the excellent program presented;

(2) The Sebastian County Medical Society, its officers and auxiliary and each individual member;

(3) Our distinguished guests who have given so generously of their time and talents to share with us, current medical knowledge;

(4) The scientific exhibitors;

(5) The commercial exhibitors and their courteous and helpful attendants;

(6) The various media of public communication, who have been most generous in their coverage of this session;

(7) The management and personnel of the Goldman Hotel and the citizens of Fort Smith, who have been most hospitable.

You have made our stay here so pleasant we are hesitant to go home.

COMMITTEES

Arkansas Medical Society (1959-1960)

	Term Expires
COMMITTEE ON CANCER CONTROL	
Edward M. Cooper, Jonesboro	1960
William B. Harrell, Texarkana	1960
Fred Krock, Fort Smith	1960
Martin Eisele, Hot Springs	1961
Jean Gladden, Harrison	1961
CHAIRMAN	
Howard S. Stern, Pine Bluff	1961
Masauki Hara, Little Rock	1962
G. Reginald Siegel, Clarksville	1962
Holden C. McCraney, Fort Smith	1962
COMMITTEE ON MEDICAL LEGISLATION	
Elmer L. Davis, Texarkana	1960
L. H. McDaniel, Tyronza	1960

Elvin Shuffield, Little Rock, CHAIRMAN 1960
K. W. Cosgrove, Little Rock 1961
G. W. S. Ish, Little Rock 1961
R. B. Robins, Camden 1961
R. C. Dickinson, Horatio 1962
J. Arnold Henry, Russellville 1962
Joe F. Rushton, Magnolia 1962

COMMITTEE ON PUBLIC HEALTH (Also serves as RURAL HEALTH COMMITTEE)
James L. Jackson, Bentonville 1960
Ben N. Saltzman, Mountain Home 1960
CHAIRMAN
Edgar Easley, Little Rock 1961
Huie H. Smith, North Little Rock 1961
Donald E. Loveless, Booneville 1962
J. P. Williams, Brinkley 1962

SUB-COMMITTEE ON MATERNAL AND CHILD WELFARE
Joseph L. Rosenzweig, Hot Springs 1960
J. F. Kelsey, Fort Smith, 1961
CHAIRMAN
J. O. Porter, Jr., Little Rock 1962

SUB-COMMITTEE ON INDUSTRIAL HEALTH
Thomas P. Foltz, Fort Smith 1960
Roy I. Millard, Russellville 1960
J. Forrest Henry, Jr., Little Rock 1961
E. Frank Reed, Jr., Pine Bluff 1961
C. Randolph Ellis, Malvern 1962
CHAIRMAN
Chaney W. Taylor, Batesville 1962

SUB-COMMITTEE ON TUBERCULOSIS
Hugh A. Browne, Alexander 1960
Harley C. Darnall, Fort Smith 1960
CHAIRMAN
Sanford C. Monroe, Pine Bluff 1961
Andrew A. Pringos, Little Rock 1961
David P. Hefner, Mena 1962
W. W. Workman, Blytheville 1962

SUB-COMMITTEE ON MENTAL HEALTH
Granville L. Jones, Little Rock 1960
William Payton Kolb, Little Rock 1960
CHAIRMAN
Byron A. Bennett, Little Rock 1961
William O. Young, Little Rock 1961
Charles D. Yohe, Hot Springs 1962
Dwight W. Gray, Marianna 1962

SUB-COMMITTEE ON LIAISON WITH THE STATE BOARD OF HEALTH
W. J. Rhinehart, Little Rock 1960
W. Myers Smith, North Little Rock 1961
CHAIRMAN
W. R. Scarborough, Clarksville 1962

POLIO ADVISORY SUB-COMMITTEE
W. H. Pruitt, Camden 1960
Walter Selakovich, Little Rock 1960
William P. Barron, Harrison 1961
Robert L. Henry, Jr., Little Rock 1961
Roger B. Bost, Fort Smith 1962
CHAIRMAN
R. H. Manley, Clarksville 1962

COMMITTEE ON MEDICAL EDUCATION
Jack Kennedy, Arkadelphia 1960
O. C. Raney, Pine Bluff 1960
Daniel H. Autry, Little Rock 1961
C. C. Long, Ozark 1961
CHAIRMAN
Thomas H. Wortham, Jacksonville 1962
Guy Farris, Little Rock 1962

SUB-COMMITTEE ON POSTGRADUATE EDUCATION
W. A. Snodgrass, Jr., Little Rock 1960
John T. Riggin, Jr., Little Rock 1961
CHAIRMAN
C. C. Long, Ozark 1962

SUB-COMMITTEE ON AMERICAN MEDICAL EDUCATION FOUNDATION
T. Duel Brown, Little Rock 1960
J. H. McCurry, Cash 1961
Joseph A. Norton, Little Rock 1962
CHAIRMAN

COMMITTEE ON HOSPITALS
Martin C. Hawkins, Searcy 1960
J. Max Roy, North Little Rock 1960
Julius H. Hellums, Dumas 1961
Robert L. McDonald, Pine Bluff 1961
A. E. Thorne, Van Buren 1962
Guy Shrigley, Clarksville 1962
CHAIRMAN

SUB-COMMITTEE ON LIAISON WITH BLUE CROSS-BLUE SHIELD
Ulys Jackson, Harrison 1960
Charles W. Reid, Pine Bluff 1960
CHAIRMAN
John Laurens, Little Rock 1961
T. E. Townsend, Pine Bluff 1961
J. Warren Murry, Fayetteville 1962
Russell W. Cobb, Malvern 1962

COMMITTEE ON PUBLIC RELATIONS
C. Lewis Hyatt, Monticello 1960
CHAIRMAN
Thomas G. Johnston, Little Rock 1960
Gilbert D. Jay, III, West Memphis 1961
T. S. Van Duyn, Stuttgart 1961
Fount Richardson, Fayetteville 1962
R. B. Robins, Camden 1962

SUB-COMMITTEE ON STATE HEALTH AND MEDICAL RESOURCES FOR CIVIL DEFENSE
M. J. Kilbury, Jr., Little Rock 1960
Nicholas W. Reigler, Jr., Little Rock 1961
M. D. McClain, Little Rock 1962
CHAIRMAN

SUB-COMMITTEE ON LIAISON WITH AMS AUXILIARY
Louis K. Hundley, Pine Bluff 1960
CHAIRMAN
James M. Kolb, Clarksville 1960
Paul Gray, Batesville 1960
W. R. Brooksher, Fort Smith 1960
J. J. Monfort, Batesville 1960

Elvin Shuffield, Little Rock 1960
T. Duel Brown, Little Rock 1960

ADVISORY COMMITTEE TO THE MEDICAL ASSISTANTS SOCIETY

T. S. Van Duyn, Stuttgart 1960
Perry J. Dalton, Camden 1961
CHAIRMAN
Stanley Applegate, Springdale 1962

COMMITTEE ON VETERANS ADMINISTRATION AFFAIRS

John M. Hundley, Little Rock 1960
P. R. Anderson, Arkadelphia 1961
John W. Dorman, Springdale 1962
CHAIRMAN

COMMITTEE ON INSURANCE

L. E. Drewery, Camden 1960
Samuel B. Thompson, Little Rock 1960
Thomas D. Honeycutt, Little Rock 1961
Melvin R. McCaskill, Little Rock 1961
Sam Jameson, El Dorado 1962
CHAIRMAN
H. E. Mobley, Morrilton 1962

COMMITTEE ON ARRANGEMENTS FOR ANNUAL SESSION

Richard V. Ebert, Little Rock 1960
Julian L. Foster, Little Rock 1960
James H. Leatherman, Hot Springs 1960
C. R. Ellis, Malvern 1961
John D. Olson, Fort Smith 1961
Wright Hawkins, Fort Smith 1961
Herbert L. Wineland, Pine Bluff 1962
Thomas E. Townsend, Pine Bluff 1962
CO-CHAIRMAN
John P. Wood, Mena 1962
CHAIRMAN

COMMITTEE ON CONSTITUTIONAL REVISION

W. R. Brooksher, Fort Smith Permanent
CHAIRMAN
H. W. Thomas, Dermott Permanent
John H. Wilson, Magnolia Permanent
John M. Hundley, Little Rock Permanent
W. J. Butt, Fayetteville Permanent

BUDGET COMMITTEE

W. R. Brooksher, Fort Smith Permanent
CHAIRMAN
Sam Jameson, El Dorado Permanent
Louis K. Hundley, Pine Bluff Permanent

SENIOR MEDICAL DAY COMMITTEE

W. R. Brooksher, Fort Smith Permanent
CHAIRMAN
Calvin R. Simmons, Pine Bluff Permanent
Wayne P. Jones, Berryville Permanent

COMMITTEE ON AGING

L. E. Drewery, Camden 1960
CHAIRMAN
J. Arnold Henry, Russellville 1960
Lon Reed, Hot Springs 1961
Ben N. Saltzman, Mountain Home 1961
Euclid M. Smith, Hot Springs 1962
Gordon P. Oates, Little Rock 1962

TRAFFIC SAFETY COMMITTEE

C. Lewis Hyatt, Monticello Permanent
CHAIRMAN
Eldon Fairley, Osceola 1961
Charles A. Archer, Conway 1960
K. E. Beaton, Wynne 1961
T. E. Townsend, Pine Bluff 1960
J. L. Dedman, Camden 1961
Karlton H. Kemp, Texarkana 1960
J. W. Kennedy, Arkadelphia 1961
Bill Dave Stewart, Little Rock 1960
Stanley Applegate, Springdale 1961
C. C. Long, Ozark 1960



35th Annual Session

Woman's Auxiliary

to the

ARKANSAS MEDICAL SOCIETY

Ward Hotel, Fort Smith, Arkansas

April 13, 14, 1959



MRS. PAUL GRAY

Batesville

President, Woman's Auxiliary to the Arkansas Medical Society, 1959-60

Minutes of 35th Annual Session Woman's Auxiliary to the Arkansas Medical Society

The Woman's Auxiliary to the Arkansas Medical Society met for the Thirty-fifth Annual Session in Fort Smith, Arkansas, on April 13th and 14th.

Mrs. Gordon P. Oates, president, called the executive board meeting to order at 8:00 A. M. Monday, in the Silver Lounge of the Ward Hotel. Following the board meeting Mrs. Oates opened the first general session in the Gold Room and introduced Mrs. Ben Pride, president of Sebastian County Medical Auxiliary, who gave the address of welcome. Mrs. William Breit, Harrison, thanked the hostess group for the Auxiliary. Delegates were formally seated and several recommendations from the board were passed without dissenting vote.

Guests at the opening session and for the entire convention were Mrs. Frank Gastineau, Indianapolis, Ind., President-Elect of the Woman's Auxiliary to the American Medical Association and Mrs. George W. Owen, Jackson, Miss., President of the Woman's Auxiliary to the Southern Medical Association.

After hearing reports of officers and Committee chairmen, the meeting adjourned for lunch. Mrs. Frank Gastineau, Indianapolis, Ind., introduced by Mrs. Mason Lawson, was the guest speaker at the luncheon in the Gold Room.

The second general session was opened at 9:30 A. M., Tuesday, by Mrs. Gordon Oates, president.

Reports of County Presidents were heard and newly-organized Conway County Auxiliary was welcomed into the State membership. Mrs. James R. Dickson is serving as its first president.

The following slate of officers for 1959-60 was read and elected unanimously:

President—Mrs. Paul Gray, Batesville
President-Elect—Mrs. C. C. Long, Ozark
First Vice-President—Mrs. E. D. McKelvey, Paragould
Second Vice-President—Mrs. Erner Jones, Little Rock
Third Vice-President—Mrs. Hershel Wilmoth, Glenwood
Fourth Vice-President—Mrs. H. W. Ward, Fayetteville
Recording Secretary—Mrs. A. J. Forestiere, Harrisburg
Treasurer—Mrs. Guy Farris, Little Rock
Historian—Mrs. C. W. Garrison, Little Rock
Parliamentarian—Mrs. Mason Lawson, Little Rock

These officers were installed by Mrs. Alfred H. Hathcock, Batesville, after the Tuesday luncheon.

The luncheon was held at Hardscrabble Country Club and attended by 162 guests. Mrs. L. Gardner, Councilor to Southern, introduced the guest speaker, Mrs. George W. Owen, Jackson, Miss., President of the Woman's Auxiliary to Southern Medical Association, who addressed the group.

Awards were presented to the following Auxiliaries and accepted by their presidents for their contributions to the American Medical Education Foundation Fund: Clark County, first place; Union County, second, and Pulaski County, third place. This represented a percentage calculation of donations based on total membership.

The annual session closed with a board meeting immediately following the Tuesday luncheon, with the new president, Mrs. Paul Gray, presiding.



Prenatal Care and Delivery of The RH Negative Patient**

JACK A. PRITCHARD, M.D.*

Hemolytic disease of the newborn or erythroblastosis fetalis results from the destruction of fetal red cells by antibodies produced in the mother and then transferred across the placenta to the fetal circulation. In those instances where the hemolytic process is quite intense the antibody most frequently belongs to the anti-Rh system (usually anti-D) rather than the anti-A and B group.

In those cases where hemolysis results from Rh antibodies the probability of erythroblastosis fetalis can be predicted with a considerable degree of certainty before the infant is born if it has been demonstrated that a previous child has suffered from erythroblastosis fetalis and the father has been shown to be homozygous.

It is obvious that testing for Rh antibodies in Rh negative women married to Rh positive men is of considerable prognostic value. Such a test need not be done with great frequency throughout pregnancy. A single determination at the thirty-second week of gestation will yield valuable information. If the patient delivers before this time there is no hope of salvaging the infant irrespective of the presence or absence of maternal sensitization. In those patients who are destined to become sensitized during the current pregnancy antibodies will almost always be demonstrated by this time. Also detected, of course, are antibodies resulting from sensitization during previous gestations. In general, but not always, the higher the maternal antibody titer, the more severe the hemolytic process.

The widespread use of exchange transfusion therapy in afflicted infants following the pioneer studies primarily of Diamond and associates has resulted in the salvage of many live-born infants who otherwise would have died. The prompt use of exchange transfusion therapy performed by trained individuals is the major weapon that is available today for combatting this disease.

The promptness with which it is used as well as the adequacy of facilities available for carrying out an exchange transfusion often will be determined by whether or not the physician is aware prior to delivery that there is a good possibility that an intense hemolytic process may be encountered at birth. Therefore, in the Rh negative woman a search for Rh antibodies should be performed, a careful history regarding infants previously born should be obtained, and, ideally, the husband's Rh type and zygosity should be determined.

THERAPY TO PREVENT OR INHIBIT THE HEMOLYTIC PROCESS

During the past several years considerable interest has developed concerning several agents claimed to be of value for arresting the hemolytic process or at least reducing considerably its intensity. Among those that at one time or another have been declared to be effective when administered to the mother during pregnancy are the following: Rh hapten, methionine, vitamin K, cortisone, bioflavinoids, and ascorbic acid. Unfortunately, in all instances where therapy with any of these agents has been adequately tested the results have failed to support the original enthusiastic claims. In fact, they have been found to be of no benefit whatsoever. Usually in the original report there was failure to focus a proper degree of attention on the treatment regime that was actually causing the improvement in infant salvage, namely prompt and well-managed exchange transfusion.

DELIVERY PRIOR TO TERM

There has been much discussion of the value, if any, of delivery of the infant prior to term in an effort to circumvent

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the possibility of either intrauterine death or the delivery of a moribund infant that dies before treatment with exchange transfusion can be instituted. Soon after the recognition of the cause of erythroblastosis fetalis many individuals advocated delivery several weeks before term. Uusually this was accomplished by cesarean section. When delivery was so scheduled the advance preparation for prompt and proper exchange transfusion in the severely affected fetus could be carried out. As pointed out by Allen such scheduling allowed the "first team" to be available and prepared.

The initial results from early delivery were not good. It relatively soon became apparent that the infant delivered during the thirty-third to thirty-fifth week of gestation was not only considerably less able to cope with the usual rigors associated with survival in the external environment but also such an infant more readily developed kernicterus and mental and motor defects than did one that was more mature. Occasionally even an Rh negative baby without a hemolytic process would be delivered only to succumb because of prematurity. In 1952 the Medical Research Council of Great Britain concluded that the routine delivery of an infant 3 to 5 weeks before term resulted in a higher mortality (36 per cent) than when labor occurred spontaneously (24 per cent). As the result of these experiences most physicians soon refrained from doing anything to promote delivery prior to the spontaneous onset of labor.

Recently there has been renewed interest in the merits of pre-term delivery in those cases where the Rh negative mother is sensitized. One of the most extensive studies reported to date dealing with this problem is that of Allen based on observations made on over 400 cases. He considered 3 categories of patients: I. Those with no previous stillbirths and with an anti-Rh titer of less than 1:64. II. Those with no previous stillbirths with an antibody titer of 1:64 or higher. III. Those with previous stillbirths and an antibody titer 1:64 or higher.

In 174 cases in the first group death occurred after the thirty-seventh week but prior to delivery in 4 per cent. In 12 per cent of the 186 cases in the second group fetal death occurred during this same period. In 10 per cent of the 59 cases in group III fetal death occurred after the thirty-seventh week.

He has concluded that induction of labor at or after 37 weeks gestation may be indicated in sensitized Rh negative women when conditions are obstetrically favorable and the fetus is of good size.

At Parkland Memorial Hospital in Dallas with few exceptions we have been waiting for the spontaneous onset of labor in sensitized Rh negative women. On the basis of the observations of Allen, however, induction of labor at or after the thirty-seventh week would seem to have merit *if, but only if, it can be definitely established that the period of gestation is* 37 *or more weeks, conditions are obstetrically quite favorable, and the fetus is of adequate size.* It should be emphasized that the first 2 prerequisites cannot always be readily determined and that fetal size may be most difficult to judge with reasonable accuracy. Frank prematurity must be avoided.

INTRAUTERINE DEATH

It is apparent from the observations of Allen that in the sensitized Rh negative patient intrauterine death is not a rare occurrence since out of 418 cases intrauterine death was encountered 114 times.

How should such a case be managed? Until recently, universally, treatment consisted of simply awaiting the onset of spontaneous labor. In 1950 Weiner and associates reported hemorrhage due to hypofibrinogenemia in 3 sensitized Rh negative women with a fetus dead *in utero* and delayed delivery. The observations initially made by Weiner have been amply confirmed. Since then it has been shown that the development of hypofibrinogenemia is not peculiar to Rh sensitization but is related to the prolonged intrauterine retention of a dead fetus irrespective of the cause of fetal demise.

A study originally begun with Dr. O. D. Ratnoff in Cleveland, Ohio has been continued for the past 2½ years in Dallas. An attempt has been made to study serially the blood coagulation mechanism, especially the level of circulating fibrinogen, in women with intrauterine death and delayed delivery. Based on observa-

tions made to date it is apparent that clinically significant hypofibrinogenemia, i.e., a plasma fibrinogen level below 150 mg. per 100 ml., is rarely, if ever, encountered prior to the fifth week after intrauterine death of the fetus. It has also become apparent during this study that most patients with a fetus dead *in utero* go into labor and deliver before 5 weeks have elapsed. This has also been the experience of Tricomi and Kohl, who noted that in 165 instances in which fetal death occurred before the onset of labor only 9 failed to deliver prior to the third week after fetal death.

On the other hand, the development of clinically significant hypofibrinogenemia is not uncommon in those patients who remain undelivered beyond the fifth week after fetal death. In 40 such patients initially studied by us only because of intrauterine death, hypofibrinogenemia developed in 25 per cent.

Data from a case typical from the standpoint of showing a slowly progressive decrease in the level of circulating fibrinogen are presented in Table I and Fig. I.

> L. D., 35, Rh negative, gravida 7, para 5, last felt movement about June 15 at which time she was about 22 weeks pregnant. When first seen 4½ weeks later the plasma fibrinogen concentration was 355 mg. per 100 ml. Although she remained asymptomatic, the fibrinogen level fell progressively to reach 142 mg. per 100 ml. one month later. At this time she was admitted to the hospital. The next day a dilute solution of Pitocin was given intravenously but effective uterine contractions did not result; the fibrinogen concentration was 123 mg. per 100 ml. About 12 hours after discontinuing the Pitocin infusion the patient developed a few hard uterine contractions and promptly delivered.
>
> An intravenous infusion of Pitocin was given prophylactically in an attempt to assure good myometrial tone. Blood loss was not excessive so fibrinogen was not administered. The plasma fibrinogen level soon returned to normal. The puerperium was benign.

It should be emphasized that experiences to date indicate that these patients do not develop hypofibrinogenemia prior to the fifth week after intrauterine death and that when hypofibrinogenemia develops it very frequently does so at a relatively slow rate. Therefore we continue to use the following regime for managing a patient with prolonged intrauterine death.

The management should begin as soon as the diagnosis of a retained dead fetus is made. The patient should be instructed to report any hemorrhagic symptoms, however trivial. Moreover, beginning about the third week after apparent fetal death, the plasma fibrinogen concentration should be determined at weekly intervals. If the concentration of fibrinogen falls below 150 mg. per 100 ml. the uterus should be emptied promptly. At least 4 Gms. of human fibrinogen and several units of compatible whole blood should be immediately available.

Unless there are obstetric contraindications it would appear safe to attempt induction of labor, as was done in the case just described. Our data so far indicate that labor and vaginal delivery, with or without Pitocin stimulation, will not result in any significant change in the concentration of circulating fibrinogen even if hypofribrinogenemia is already present. If the induction of labor is judged not feasible or, more likely, if attempts at induction fail, hysterotomy should be carried out.

In those cases in which the induction of labor is successful, it may be safest to give fibrinogen shortly before the anticipated time of delivery. Certainly if any significant bleeding occurs during labor, delivery, or postpartum, either from the genital tract or elsewhere, promptly 3 to 4 Gms. of fibrinogen should be given intravenously. It should be pointed out, however, that in several of the patients with hypofibrinogenemia who have delivered vaginally, fibrinogen therapy was purposely withheld under carefully controlled conditions and hemorrhage was not usually encountered after delivery in the absence of lacerations of the genital tract, episiotomies, or postpartum uterine atony. Undoubtedly, as pointed out by Barnes, a well contracted myometrium plays a major role in effecting hemostasis at the site of placental implantation immediately

postpartum even in the presence of blood coagulation defects, but lacerated vessels in other parts of the genital tract do not have a vasoconstrictive mechanism comparable to the contracting myometrium.

Abdominal surgery in the patient with hypofibrinogenemia should be performed only after giving 3 to 4 Gms. of fibrinogen intravenously immediately prior to surgery and after starting an intravenous infusion of dextrose or saline running through a well placed 18 gauge needle. Following the emptying of the uterus close attention should be given to blood loss from the vagina. An intravenous infusion of diluted Pitocin for several hours after delivery is desirable to aid in the maintenance of a well contracted myometrium.

The possibility has been suggested that those patients who develop hypofibrinogenemia could be managed by simply correcting the fibrinogen deficit by giving fibrinogen and then awaiting the onset of labor. Such a regime is not satisfactory. When fibrinogen is given to such a patient the fibrinogen level is, of course, promptly elevated, but it very soon falls to the preinjection level. Therefore, the effects of therapy are quite transient. Moreover, commercially available fibrinogen is not only expensive, but its administration not infrequently is followed by homolgous serum hepatitis.

SUMMARY

1. Exchange transfusion is the major weapon for combatting erythroblastosis fetalis. Success with this treatment will usually depend upon the promptness with which it is used and the adequacy of facilities for carrying it out.

2. The administration to the mother during pregnancy of any of the several agents suggested at one time or another for combatting erythroblastosis fetalis has proved to be of little or no value.

3. Delivery of the infant from an Rh negative sensitized mother at or after the thirty-seventh week may prove to be of

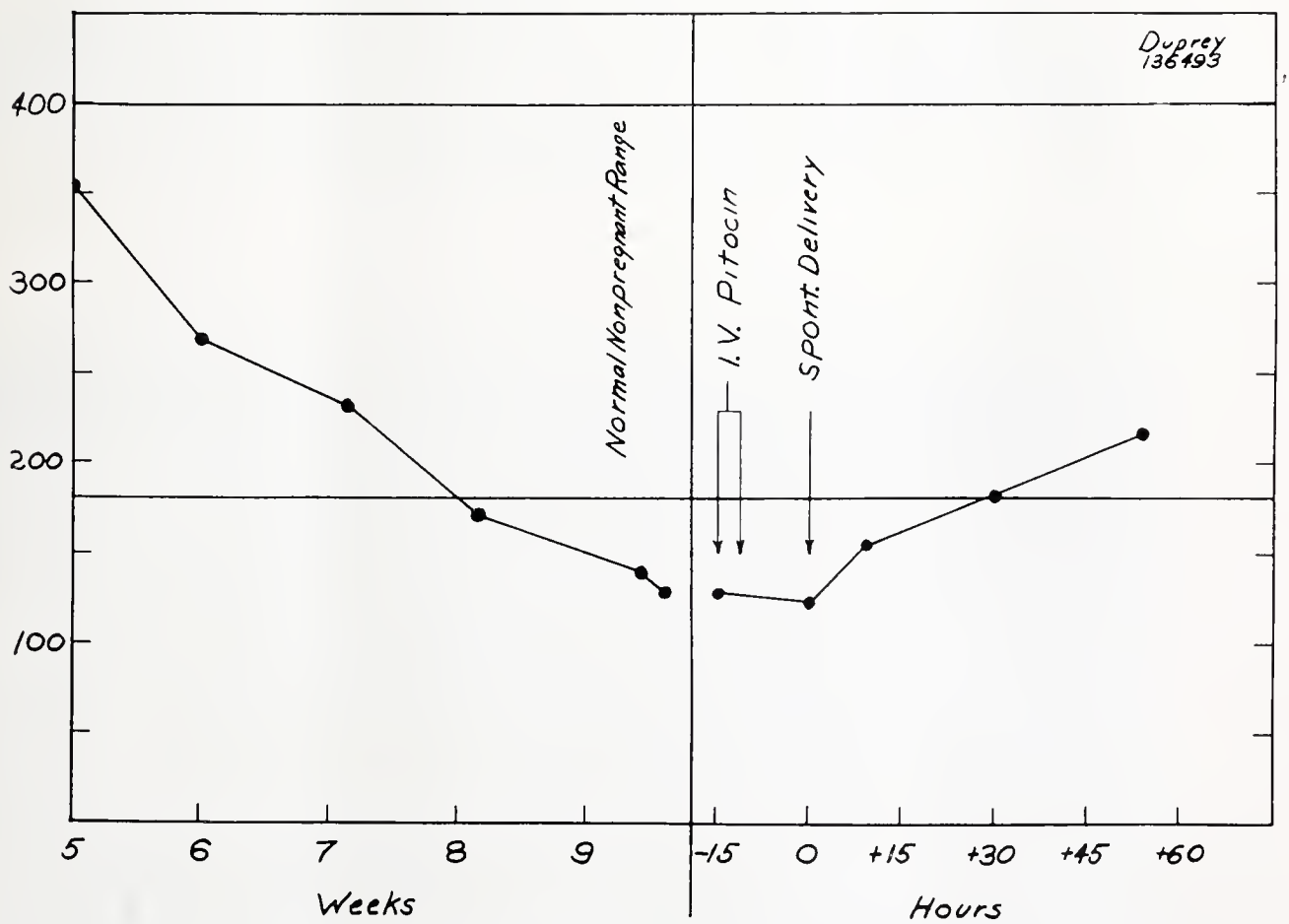
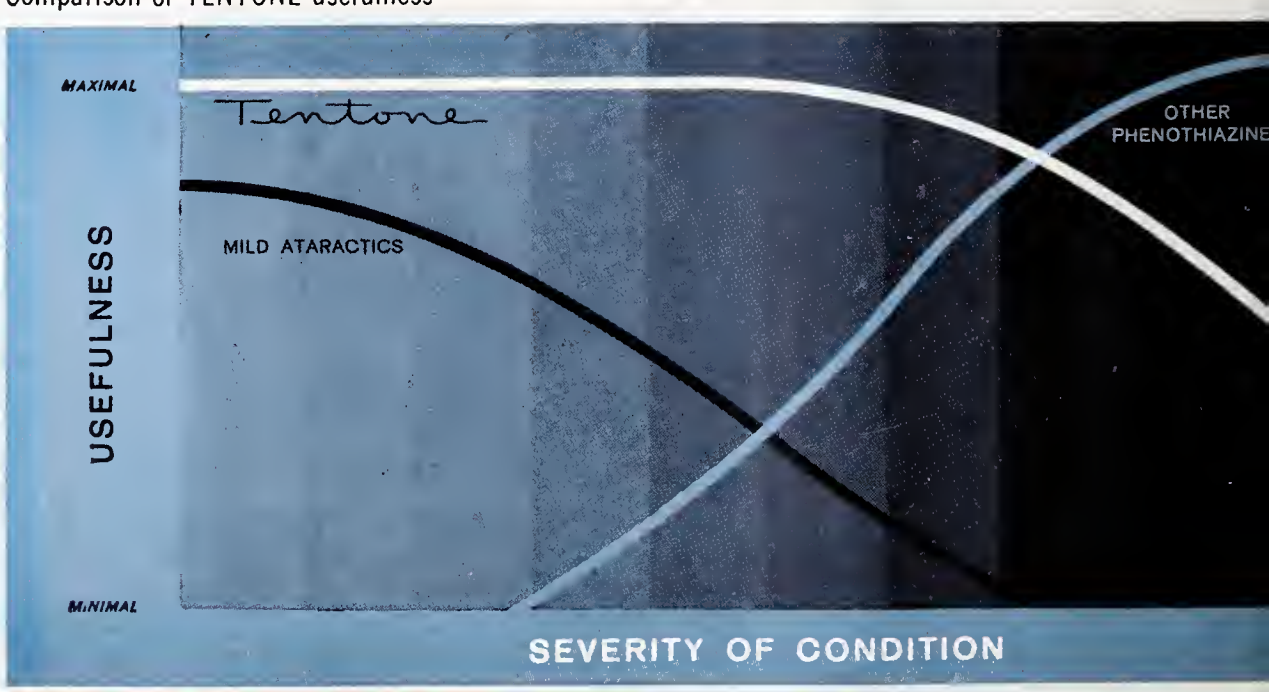


Fig. I. Shown are serial fibrinogen levels in an Rh negative patient with prolonged intrauterine retention of a dead fetus. The plasma fibrinogen concentrations are indicated along the ordinate (mg. per 100 ml.).

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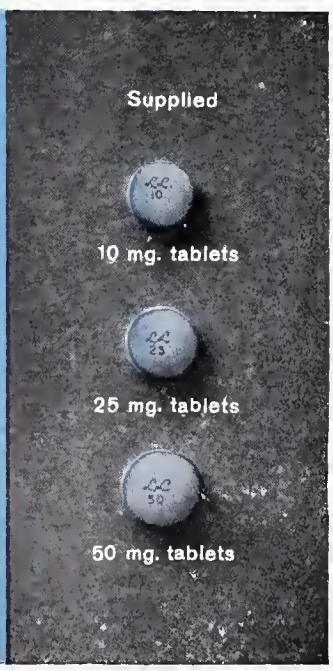
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some value. It should be done only if it can be definitely established that the period of gestation is 37 or more weeks, conditions are obstetrically quite favorable for induction of labor, and the fetus is of adequate size.

4. Intrauterine death is not uncommon in Rh negative sensitized women. A plan for managing these patients has been presented.

TABLE I
DATA OBTAINED FROM AN Rh NEGATIVE PATIENT WITH PROLONGED INTRAUTERINE DEATH AND HYPOFIBRINOGENEMIA

Date	Fibrinogen (mg./100 ml.)	Hematocrit	Comment
7-16	355	40	Asymptomatic
7-23	270	41	Asymptomatic
7-31	234	—	Asymptomatic
8-7	172	42	Asymptomatic
8-16	142	41	Asymptomatic
8-17 (1100)	123	40	I.V. Pitocin; poor contractions
8-18 (0300)	119	—	Spont. delivery; blood loss not excessive
8-18 (1200)	143	40	Asymptomatic
8-19 (0900)	182	42	Asymptomatic
8-20 (0900)	220	40	Asymptomatic

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An Unusual Case of Hodgkin's Disease In A Child

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This is a single case report of Hodgkin's disease in a five year old child, presenting with rapidly developing obstructive jaundice with hepatosplenomegaly and leading to death within six weeks of the first symptom and less than one week after hospitalization. Hodgkin's disease is uncommonly encountered in children, and rarely seen under the age of seven years, according to Douglas (5), who states that enlargement of the liver and spleen is particularly rare. Bufkin et al (2) report that of all malignancies in children under 14 years of age, 1.3 per cent were Hodgkin's lymphoma. A survey by Shimkin et al (10) in California revealed a 14.4 per cent incidence of Hodgkin's in children under 15 years of age out of a total of 294 proven cases seen since 1914; the area of involvement was not singled out. A report from Texas by Schneider and Bakker (8) revealed a 7.2 per cent incidence of Hodgkin's in children out of a total of 292 cases diagnosed between 1942 and 1955; again, area of involvement was not specified.

Hayden (6) reported 29 cases of pure gastrointestinal lymphomas but none were confined to liver, spleen and lymph nodes and it was felt that pure involvement of these organs would be most unusual; also, of particular note is the fact that none of the cases, even with hepatic and splenic involvement, had evidence of clinical jaundice. Schwind (9) cited 23 cases found by Smith (12) and 85 cases from the literature of Hodgkin's in young children, five of whom were under one year of age. His one case report revealed late hepatosplenomegaly and generalized lymphadenopathy with marked lung involvement but no clinical jaundice.

The clinical course in the case to be presented is unusual in that it includes obstructive jaundice and a very fulminating course, but typical in the beginning episode. Corbeille (3) states that in children a previous infection is the most common presenting complaint whereas a history of trauma was the second most common initial complaint (as was true in our case). The most frequent physical finding in the beginning in every case described by Corbeille was marked lymph node enlargement over the entire body; the liver and spleen were not enlarged. Only 2 of the 33 cases which she cited had both liver and spleen enlargement and none had clinical jaundice. Our case had a generalized, shotty lymphadenopathy but nothing remarkable, whereas the most outstanding findings were those of a large liver and spleen, jaundice, fever and anemia.

Jaundice in Hodgkin's disease is not rare, according to Beatty (1) who gives a 3-8 per cent incidence in all cases studied. This, however, includes all cases with superimposed viral hepatitis as described by Hoster (7) and the hemolytic anemia due to secondary hypersplenism as described by Dameshek et al (11) and a low but unspecified incidence of obstructive jaundice from external nodes as described by Coronini (4). The last is the cause of jaundice in our case. Beatty (1) has examined 40 cases and reports 32 with liver involvement but only 16 were ever jaundiced and the number of children with these findings were not specified. Finally, the clinical course of our case is unusual in its duration for fulminating cases under four months' duration have not been described.

From the above statements and observations from the literature, the following case is cited because of 1) occurrence of Hodgkin's disease in a five year old male with an antecedent history of trauma; 2) isolated involvement of liver, spleen and lymph nodes; 3) clinical jaundice due to external nodal obstruction of the common bile duct; 4) fulminating downhill course to death within five weeks of the original stress.

Case Summary: J. M. was a 5 year old male who was admitted to the University

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of Arkansas Medical Center for the first time on January 21, 1958, with the history of being struck on the back of the neck with a stick in mid-December 1957. On the day of trauma, the child complained of pain in the neck. He had marked weakness of the neck muscles and was told by an LMD that he had an upper respiratory infection. He improved with treatment and there were no further complaints until the last of December 1957. At this time he developed chest pain on exertion, had daily spikes in temperature and became anoretic. A diagnosis of pneumonia was made and he was treated with broad spectrum antibiotics without improvement. He lost weight rapidly, complained of abdominal pain and became bedfast because of weakness. During the 10 days prior to admission he refused to eat any solid food and drank only large quantities of water. One week prior to admission he developed jaundice which gradually deepened. The urine became dark, the stools very light in color and there were episodes of marked epistaxis 3-4 days prior to admission. There is no significant past or birth history but the family history revealed an uncle (not in the same household) with jaundice in November 1957 (with uneventful recovery) and an aunt with arrested tuberculosis.

Physical Examination revealed the patient to be lethargic and emaciated; he appeared acutely and chronically ill. Temperature 103.8 (R), pulse 130-min.; respirations 30-min., weight 36 lbs. (25th percentile). Skin-dry and icteric, mucous membranes pale, moderately enlarged cervical, axillary and inguinal lymph nodes. The sclerae were icteric, crusted blood was in nose without active bleeding point being noted. Chest examination revealed dry rales in the right lung base. There was mild cardiac enlargement to percussion with grade III harsh systolic murmur over the base. The spleen was 3 cm below the left costal margin and the liver 7 cm below the right costal margin. Bowel sounds were hypoactive, no fluid wave was appreciated and no other masses palpated. Extremities revealed a non-pitting edema below the midtibia. Neurological evaluation revealed a slightly stiff neck and bilateral sustained ankle clonus. There was generalized weakness but no specific muscle groups appeared to be involved.

Laboratory Data — Urinalysis revealed a trace to 2+ protein and no bile. Hemogram on admission revealed 5.1 gms. Hgb., RBC 2.0 million, WBC 13,600 with a normal differential. The ESR was 57 mm/hr and hematocrit 20 per cent. This remained unchanged until a blood transfusion on 1-22-58 raised the Hgb. to 12.6 gms. The platelet count on 1-22-58 before transfusion was 27,000, bleeding time 2 min., clotting time 32 min. The prothrombin activity as compared to a control was 15 per cent and 22 per cent of normal on 2 occasions. A lumbar puncture on admission revealed an opening pressure of 180 mm. of water (with some resistance by pt.), clear fluid with no WBC, 23.5 mgm per cent protein, 36 mgm per cent sugar and 116 mEq./L chloride. The serum chemistries on admission revealed a Co_2 of 21 mEq./L, chloride of 98 mEq./L and NPN of 52 mgm per cent. These remained essentially unchanged on 2 occasions. The serum bilirubin on admission was 12.5 mgm per cent total, the one minute value being 6.8 mgm per cent. O.T. 1:1000 and Histoplasmin 1:100 skin tests were negative at 48 hours. The alkaline phosphatase was 38 KAU on 1-23-58 and thymol turbidity was 2 units. A bone marrow on admission revealed the myeloid series to be active with maturation arrest. The erythroid series revealed increased numbers of polychromataphilic normoblasts. Megakaryocytes were present and active. No specific diagnosis other than normoblastic erythroid hyperplasia could be made. A culture of pus from the middle ear grew *A. aerogenes.* Spinal fluid culture was negative, throat culture grew *E. coli* organisms. A chest x-ray revealed hilar adenopathy partially calcified. Dilatation of the heart suggested marked anemia. A bone marrow culture was negative as were the blood cultures. Two sickle cell preparations were negative.

Course in Hospital: Following the initial studies, the patient was begun on aqueous penicillin 300,000 units (I.M.) q4h and Gantrisin syrup 1 gram q6h. He was placed in oxygen and moisture. Intravenous feeding of 10 per cent Dextrose

was begun because the patient refused to eat; this contained large amounts of vitamins B and C. Vitamin K_1 oxide was given (10 mgm. I. V.) because of the abnormal prothrombin activity. On 1-23-58 because the patient appeared to be getting worse, 25 mgms cortisone acetate (I.M.) q6h was started. The patient spiked fever to 104° daily and did not improve on therapy. On 1-24-58 he became anuric and intravenous fluids were reduced to cover insensible water loss. Tetracycline was given intravenously and fresh whole blood and plasma were given. On 1-26-58 the child expired quietly.

Autopsy findings revealed enlargement and involvement of all lymph nodes with Hodgkin's granuloma. The periaortic nodes were compressing and obstructing the common bile duct externally. The lungs and heart were not involved with the disease. The liver and spleen were quite large and both had nodules over the entire surface and throughout the parenchyma which were orange-yellow in color and on cut sections were necrotic. The gall bladder, pancreas, kidneys, adrenals and entire intestine were un-involved.

Pathologic Diagnosis — Hodgkin's granuloma involving spleen, liver and lymph nodes.

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Extent of Immunization on School Entrance

Wilma C. Sacks, M.D.*

Immunization against some of the communicable diseases has been available for many years, beginning with vaccination against smallpox as introduced by Jenner, and including such recent additions as Salk vaccine against Poliomyelitis and the 1957 vaccine against Asian Influenza. Some of these, such as smallpox vaccination and Diphtheria-Tetanus-Pertussis immunization, have been in effect for many years. The Salk vaccine, while available only for a relatively short time, has been widely publicized, and numerous efforts have been made to secure an extensive immunization of the population, particularly of school age children.

At the present time nearly all deliveries are by physicians, and these usually see the infant at 6 weeks to 2 months of age, at which time the mother is advised about an immunization schedule. In view of these factors, and the important place of immunization in the prevention of communicable disease, it was thought that a study of the extent of immunization in first grade school children would be of interest.

For the purpose of securing the desired information, a letter was sent to the school superintendents of Washington County, asking that they have the first grade teachers request this information from the parents. The specific immunizations about which they were asked were: smallpox, D.P.T. series, D.P.T. "booster" injections, typhoid, and polio. In the case of poliomyelitis immunization, the parent was asked to state whether the child had had one, two, or three injections of Salk vaccine.

Washington County is predominantly rural, but it has two cities of moderate size — Fayetteville, with a population of about 18,000, and Springdale, with a population of over 7,000. These can be considered as representing urban areas, and the figures were broken down to show the extent of immunization in urban as compared with rural areas. Schools in the county are to a great extent consolidated, so the decision in many cases as to whether the child was urban or rural was based on his having a street address or a rural route number. Many of the latter lived on the outskirts of one of the cities, but this seemed a practical dividing line.

There is reason to judge from observation of figures on the definitely rural schools, namely the one and two room all grade schools, that the percentage of immunizations would be even lower than in the Rural Area Table below. However, the numbers of first grade children in these individual schools is so small that percentage figures could not be considered significant.

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TABLE I. Shows the results in the urban areas. Total number of children 348.

Smallpox	DPT Series	DPT Stim.	Typhoid	Polio 1 Injection	2	3
332	266	144	88	11	26	211
95.4%	76.4%	42.2%	25.3%	3.1% Some polio protection	7.3%	60.6% 71.3%

TABLE II. Shows the results in the Rural Areas. Total number of children 395.

Smallpox	DPT Series	DPT Stim.	Typhoid	Polio 1	2	3
316	227	85	63	4	49	156
80%	57.4%	21.5%	16.2%	1% Some protection	12.4% 57.4%	42%

SUMMARY AND CONCLUSIONS:

1. A survey was made of the extent of immunizations of children in Washington County upon entrance to the first grade of elementary school.
2. For all usual immunizations recommended for infants and children, the percentage was considerably lower in the rural than in urban areas. The percentage was well below a desirable one in both areas.
3. Education of parents regarding the need for immunization is far from complete, and is a continuing task for the family physician and the public health worker.
4. Even though new areas of public health education are being stressed, it is too early to stop emphasizing the old ones.

The author wishes to thank Mr. J. R. Kennan, County Supervisor of schools, and the superintendents and teachers who procured the figures for this paper.

Summary of Remarks Concerning Physicians and Government**

AUBREY D. GATES*

There is an unfortunate feeling on the part of many physicians that legislation and political activities are "dirty work." If politics and legislation are dirty and are carried on by people that are not all that we would like to have them be, it is only because good people have neglected their duty. Assuring ourselves that the affairs of government are in the hands of good people is one of the highest duties of any citizen. You have a man in Congress of the highest caliber, Congressman Oren Harris here in your own district. Both of our U. S. Senators and all of our Congressmen are exceedingly high type men, of whom I am exceedingly proud. Arkansas is indeed fortunate to have such an outstanding delegation in our nation's capital.

Physicians and their wives are in a unique position to influence political and legislative action for good. They are influential and should be active members of every community.

The size of our job is enormous. Organized labor, for example, is very active in this field. Some of their philosophy is in complete opposition to that in which physicians believe, but we think physicians are influential enough and have enough friends and allies that the opposition can be met in an ethical, wholly-above-board way.

If all of the approximately 200,000 physicians in the United States and their families lived in one city, county, or localized area, they would be entitled to *one* Congressman. Their job is to work closely enough with other groups that they can multiply their strength by as nearly 435 times as is possible. There are approximately 17 million members of organized labor — almost 100 times the strength of the members of the American Medical Association. Our friends, however, who share the same philosophy as does medicine with reference to the freedom-of-choice system, in the aggregate are far stronger than the 17 million members represented in organized labor.

For us to accept the fact that all 17 million members of labor are of one mind and are therefore opposed to medicine is fallacious. There are many local laboring people who also believe in the free choice system, and doctors should take every opportunity to make clear to all people, including those in local labor organizations, what free choice of physician means in the free choice system. In

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**Presented at Fifth Medical District Meeting, Camden, Ark., Sept. 30, 1958.

other words, we have a job to do to cultivate labor as well as all other citizens of this country, to tell medicine's story as effectively as is possible.

Another erroneous belief has been that a central organization such as the American Medical Association or any other national organization can fight the legislative battles of the people back home. AMA and like organizations have a function to perform, and it is an important one. However, there is nothing which impresses an elected representative as much as the people who vote for him in his home district. Our job, then, is a fairly simple one — simply that each person as a citizen will first of all rid himself of the idea that there is a taint to political or legislative activities, then become well enough informed and energetic enough to influence as many of his friends with correct information as is possible.

If medicine is to remain free, there is no choice. It is a simple process, but it is hard work. We in AMA will try to do our part. What we want most is to join hands in a true spirit of partnership with you of the Arkansas Medical Society, the Fifth District Medical Society, each of your county medical societies, and with each of you personally. If we can combine our efforts, we can be assured of success.

What's NEW

The Evolution of Our Community Hospital

JOHN A. GILBREATH*

The hospital today is becoming an ever increasingly accepted component in the American public's standard of living. It must now accept responsibility for full and adequate hospital care including all requirements made upon it by advances in medicine, the economy of our nation, and the demands of the people.

In the planning of hospital facilities today it is wise to inventory the demands and desires of all the forces which affect our community hospital. It is well to consider that specialty hospitals are fast disappearing. Proprietary hospitals are also diminishing in numbers. The more dominant role in the health field is now played by the general hospital. Plenary services must therefore be provided if we assume our additional responsibilities.

Our patients now demand physical accommodations which in some instances approach luxury. They are no longer interested in multi-bed accommodations but desire private rooms. Private bathroom facilities are now expected. Patients request telephones, television sets, wired music, the services of volunteer or paid hostesses, and any other sumptuous equipment or service which might make their stay more pleasant.

The American Hospital Association and other interested agencies are doing a great amount of planning and study in connection with the future of our hospitals. We predict that future hospital planning will result in even more convenient, luxurious, but also more effective facilities. Within the next ten years hospitals will probably be made of glass and aluminum, the glass tinted to prevent glare, fully air conditioned with winter heating supplied by local power companies which have an electronic reactor to provide prime power sources. All areas will be sound proofed, and elevators completely electronic without operators. Most ancillary services in these hospitals will be located on the first two floors of the acute hospital unit which permits easy expansion. Sufficient acreage will be provided for the new hospital to allow for adjacent units such as geriatrics and psychiatric facilities. Other buildings may contain physicians' offices, hotel accommodations for out-patients and hospital guests, residences for student nurses, residents and interns. Hospitals will contain large out-patient departments which will be able to accommodate ambulatory patients.

Dietary services will be located in the center part of the hospital grounds and will probably use infra-red cooking. Food trays, which will be moved with high speed tray-veyors to all buildings, will be lightweight, approximately 4′ high cabinets, 22″ long and 15″ wide, with hot and cold sides provided with hot and cold chemical capsules. Elaborate insulation of the trays' covers will aid in keeping the food hot or cold. Ambulatory patients from any of the patient care units will use a main dining room located in the acute building. Regardless of the type of diet the patient may be on, a la carte service will be available.

All services in the hospital will be supplied to nursing units by a dumb-waiter from a central work area. In addition all service units will utilize pneumatic tube systems which will accommodate specimens, medicines and other small items. The only times members of a department will be required to leave will be for meals and when messengers take patients to other departments. Communication sys-

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tems will be electronic and function from patient to nurse and vice versa and between units and departments. Television will be used to monitor patients from nursing chart desks.

Electronic voice writer typewriters will be provided for the physician and nurse to dictate progress notes, nurses' notes, etc. Notes transcribed by these machines may be placed on charts within two to three hours. (1)

The American Hospital Association with the electronic industry is now studying an all-control record system which is based on a computer. Computer equipment will be able to process the day to day operation of the hospital including in-patient accounting with insurance distribution, accounts receivable, accounts payable, payroll, inventory control, purchasing, medical records and statistics. Computers which use tapes will not need to be as complicated as those now used by industry, as hospital operation will not require the speed and complexity which are needed by industry. Where hospitals are now using pneumatic tube systems to carry information between departments, especially in connection with patient charges, installation of remote input equipment in each department where charges are made, will allow information to be transmitted by wire to the computer and thus alleviate the handling of charge slips by the department and business office personnel. This will also make possible in seconds a complete breakdown of hospital bills which is not practical with present machine accounting.

Chilled water will be piped to each bedside and paper cup dispensers will be easily accessible to patients as desired. Beds will be completely patient operated with push buttons. These are but a few of the plans for the hospital of tomorrow.

Recovery rooms in the present hospital are today an accepted fact. Our institutions must go further in their efforts to improve health care. Some hospitals are now providing a new concept in patient care by segregating patients not only by specialties such as obstetrics, pediatrics, orthopedics, etc., but according to the acuteness of the individual illness. Patients acutely ill are being placed in intensive care units which are set up much as the recovery room. Comfortable carriage type beds are used for the patient and nursing personnel is constantly at carriage side. Every possible equipment, supply and medication is at the nurses' fingertips. Private duty care will not be needed in these units. Hospitals providing this service also continue to maintain standard care units. A self-care section is also being established in the modern hospital. It is possible for patients in these areas to live a normal life, going to meals in the cafeteria where food selection is possible, having available some recreational facilities such as television rooms, game rooms, etc., and yet having medical supervision and minimum professional nursing care. Costs in a self-care unit will be low, but care effective.

As another part of the community's need, hospitals now are providing psychiatric units within a general hospital. Units may be locked (this more for protection of the patient than to keep people away from him) or they may be open halls with only special facilities for the disturbed patient. Costs for hospitalizing these patients is less than for other types of patients. The acute psychiatric case has an average stay of 15 days. As these units become more prevalent in our general hospitals the stigma of psychiatric care is lessened and patients will seek aid from a psychiatrist at an earlier date with better results.

Isolation hospitals and isolation wards are disappearing. These patients are being handled on an individual room basis with the nursing personnel taught to take the proper precautions when giving treatments. Surgery for active tuberculosis patients is now handled in this manner.

In an effort to conserve technical help in our institutions, hospitals are now making use of many disposable items. Disposable needles and syringes are yet a little expensive but as more hospitals begin to utilize this facility the cost per unit will drop considerably. Within a short time this will be the procedure used in all hospitals thus reducing not only nurses' time but also reducing hazard from cross-infection.

We are using successfully many packaged items in the dietary field. Patients are served jelly, butter, salad dressings, sugar, pepper, salt, cream and lemon

juice in packaged items. Deep freeze units in kitchens make possible reduction of vegetable preparation and the purchase of meats and packaged items all tend to reduce costs for dietary care. Dehydrated food such as shrimp can become fresh again by simply soaking in water.

Hospitals must increase their teaching facilities. Nursing schools are still primarily the responsibility of the general hospital and the cost of this education is placed upon the pay patient. The degree program schools have been established over the United States but at best they have small enrollment and provide very little actual bedside nursing. The degree program is extremely important in that it provides a resource for faculty and supervision which has been unavailable in the past. There is much discussion as to whether or not the three year diploma program will be eliminated. It is our belief that diploma schools will continue and that people engaged in this particular phase of education should no longer try to defend their program but redouble their efforts to make their schools the strongest possible thus fulfilling the actual need of our community for bedside nurses.

It is also the hospital's responsibility to its community to provide educational facilities for interns, residents, x-ray and laboratory technicians, medical records librarians, and clinically trained chaplains. While this is a major responsibility of a hospital, it is also a factor which drastically effects the cost of hospitalization care in the United States today. No good answer has yet been developed whereby the total community can share in the expense for operating these educational programs.

With the advent of additional facilities for patients, modern equipment and the responsibility of the institution for teaching, some emphasis should be given here toward the financing of our modern day hospital. At present the average cost per patient day in the United States is $25.00. If our present rate of inflation continues, and there seems to be little hope that any other situation will develop, it is easy to predict that in ten years our per diem cost will approach $45. Hospital care is now being financed by third party payments. The spread of hospital prepayment coverage to more than two-thirds of the population means that the hospital bill is becoming largely the community bill and that it is increasingly being underwritten by the well rather than by the sick. This means that the public will visualize hospital costs in terms of the cost of prepayment rather than as charges for services received. Under these circumstances what they are getting will not be related to what they are paying.

One set of forces that will importantly influence the community's hospital bill are those involved with the rapid population growth anticipated for this country. It is estimated by the Bureau of Census that the total population of the nation will exceed 220 million by 1975. This will represent an increase of 50 million, or approximately 29% during that period of time. With such a growth in population the one item of capital expenditure necessary to provide additional construction will alone complicate our hospital financing.

At the present time hospital construction costs run around $20,000 per bed. Ignoring inflation and using this figure as a basis, it will require approximately 4½ billion dollars to provide the required 225,000 new general hospital beds by 1975. This means about $100 for each new person that enters our communities.

Another big factor in the cost of the community's hospital bill is the changing character of our population. The slowest growing group of our population will be the age ranging from 25 to 64 years. These are the people that bear the major responsibility for the maintenance of families and the payment of Blue Cross or insurance hospitalization. Again according to the Bureau of Census, in 1956 there were about 81 million people in the age range 25 to 64 years. This number will rise to 96 million by 1975 or by somewhat less than 20 per cent. At the same time the dependent child population, those under age 18, will increase some 20 million or about 35%. This one aspect of the population change means that the number of dependents covered under prepayment family certificates will be increased by 35% while the number of family prepayment certificates will be increased by only

20%. It follows that the cost per family contract then will be much higher than it is today.

Another factor in this picture is in regard to persons 65 and over. The experts say that there will be 22 million people 65 and over by 1975 compared with less than 14.5 million in 1956, an increase of 7.5 million or 52%. This is compared with the previously mentioned increase in the total population of 29% for the same period. (2) These persons require three times as much hospital care as the population under 65. They are least able to meet hospitalization expense when they have reached retirement age. The total community bill for health thus continues to rise.

With the introduction of the Forand Bill, hospitals and physicians have become extremely interested in trying to provide service for these senior citizens without our government accepting this responsibility. The Board of Trustees of the Blue Cross-Blue Shield in Arkansas is now making careful study of this problem in an effort to provide adequate coverage. Hospitals and physicians are being asked to contract with Blue Cross to care for these patients on a reduced cost basis and allow a prepayment plan to be written. There is no easy solution but communities can and should continue to solve these problems in their own locales if possible.

The greatest single item affecting hospitalization costs in our hospitals is that of labor. Approximately 65% of the hospital's monthly expense is its payroll. Hospital employees are still underpaid in comparison with industries within their own community. Hospital Boards of Trustees must try to rectify this situation before they are completely organized by labor unions and forced to give their employees what they should already have received. This is a very difficult problem in the State of Arkansas since our per capita income is now $1,208, yet we are paying salaries commensurate with that of hospitals over the entire South which have communities with much higher per capita income.

Federal and state governments have set up many indigent care programs throughout our nation. Most of these plans are on a per diem payment basis to hospitals and in most instances only a portion of the cost of caring for this patient is allowed the hospital. Again this means that the sick patient is paying the bill rather than the governmental agencies paying the actual cost and spreading this cost among the taxpayers. In Arkansas our state programs are more advanced than in many of the states around us. Patients certified by the State Welfare Department can be cared for in a local hospital and the institution will receive 90% of its cost up to a maximum of $20.00 per day. Included under this category of patients are such services as Remedial Eye Service, Act 115, Cancer Control, the Crippled Children's program, and Vocational Rehabilitation. State and federal programs must be made to pay full costs to relieve our full pay patients of this burden.

Parallel with this discussion of facilities and financing of hospitals, we constantly have the problem that hospitals are usurping areas of practice which should be the sole prerogative of physicians. Philosophically medicine is practiced in hospitals — not by hospitals. We must come to grips logically with this problem. Efforts are being made by specialty groups such as pathology, radiology and anesthesiology to prevent exploitation of the physician in these specialties and divert part of the income which the hospital has utilized in the past to the physician. At the same time there is movement afoot among other groups such as pharmacists and physical therapists either through their professional associations or by legislation to prevent the alleged hospital practice of physical therapy and pharmacology. The danger of this trend is that a hospital could become nothing more than a hotel. The overall result would be organizational confusion, a tremendous increase in cost to the patient, with a dozen separate bills being rendered. While hospitals recognize there is some justification to these theories, they must also be very careful to maintain their position of being a complete unified facility for diagnosis and treatment of patients.

With the increased complexity in the field of hospital administration, the hos-

pital industry has recognized the need for formal training of its hospital administrators. Boards of Trustees are urged to engage as administrators men who are members of a professional group named American College of Hospital Administrators. The emphasis of this organization is to develop executive qualities in people who have chosen hospital administration as a profession. Schools of hospital administration have been established over the country in universities. Men with basic degrees in college may take a Master's degree in hospital administration by spending nine months in one of these hospital administration schools and then one year as a resident in a hospital with a clinically approved program. During the year, residents rotate through every department of a hospital familiarizing themselves with routines and procedures. Residents are also brought into the administration office and there instructed in personal and other relationships with the medical staff, Boards of Trustees, handling of personnel problems, hospital financing, and the administrator's responsibility toward the community. Residents are taught that hospital medical staffs must function as a Democratic organization insofar as possible. It is only through well-organized committees and through the efforts of an executive staff that a high qualify of medical practice can be assured within our modern institutions. Many hospitals in our nation now are constructing office buildings adjacent to hospital beds. These office buildings make possible better patient care in that the physician is immediately accessible to his patient and can more constantly supervise. In addition to this advantage, it is possible for a hospital to take funds made available through operation of the building and apply them toward the expenses of operating a hospital. Boards of Trustees must be cautious in this phase of construction in order that the tax status of the hospital will not be affected.

The future of the community hospital will continue as we know it today only through competent community planning. A good example is in Houston, Texas, where the Texas Medical Center is creating future health care for its citizenry. Here a group of hospitals have joint purchasing, laundry and power plant. The medical and surgical service in one hospital, by common consent, may be the only such service for the group. This is a report which is good to see. Only by this cooperative planning can a comprehensive program of health care be accomplished with the least possible cost. In many local situations we see that we have provided services just to keep abreast (supposedly) with a neighboring hospital. We must ask ourselves whether or not the public needs these duplications. We are thinking of such special services as cardiac and vascular surgery, cardio-pulmonary laboratories, neurosurgery, elaborate metabolic services, cobalt therapy equipment, and isotope laboratories. This will require a full realization that as voluntary institutions and as governmental institutions we have an obligation to the public to provide services needed, anticipate the future needs, and yet do this without duplication to the extent that such duplication causes an unnecessary increase in hospitalization costs. To achieve and carry out this program will require a spirit of humility.

In the opinion of hospital people today, therefore, it is generally felt that our most critical problem as we meet the future will be qualified personnel. Not only must we meet population growth but also compete with corporations, industry, public health service, research, armed services, unions, local, state and federal health services, that will all clamor for qualified health personnel. The battle of incentives to entice personnel from one organization to another will be heightened. Skilled personnel will be at a greater premium and they, in turn, must learn to live more cooperatively with paramedical groups of personnel. Hospitals must learn to take personnel available and through good in-service training programs raise the level of performance of these individuals to the point needed by our present hospitals.

The educational systems for all categories of health personnel must be carefully correlated. A secondary school should extend its education and training in these fields. Experimentation must be done in ways to best evaluate health personnel for each level of responsibility. A more realistic balance between didactic

education and experience must be reached. Finally, salary levels for all health personnel must be maintained at competitive levels with other vocations.

In conclusion, it must be emphasized that the problem of our financing of health care in the community is one which increases in complexity. Many believe its only solution is by government financing and control. In the medical and hospital field, we feel that the voluntary system is still the best yet devised to give our people adequate care. We can meet our need by continuing to promote prepayments, pooling our purchasing, equipment and medical services, and making our community aware of its responsibility toward the total problem of teaching and healing.

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A TEACHING SEMINAR
FROM THE
UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

Neonatal Hemorrhage

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Hemorrhage is associated with a wide variety of diseases in the neonatal period. In some, it is the major manifestation with the symptomatology being directly related to the intensity of hemorrhage and the organ system or systems involved. In others, it is of secondary importance with the majority of symptoms being due to the underlying disease process itself. In such instances, however, hemorrhage is almost always a bad prognostic sign.

The occurrence of any hemorrhage in the neonatal period is of serious portent and commands the physician's immediate and concentrated attention, for he must decide and decide quickly on a diagnosis and what therapy is indicated. In those diseases that are amenable to therapy, whether medical or surgical, the sooner appropriate treatment is instituted the better the prognosis. This is especially true in the case of cerebral or massive gastrointestinal hemorrhage. The diagnostic tools available are the physician's clinical acumen and a few relatively simple laboratory procedures. In the following paragraphs the differential diagnosis of hemorrhage in the neonate will be discussed from the clinical, laboratory and therapeutic points of view.

The first consideration to be made is whether the hemorrhage is due to an anatomical defect or to a deficiency of a factor or factors necessary for normal hemostasis. Examples of the former are gastrointestinal bleeding due to a Meckel's diverticulum or cerebral hemorrhage due to a tentorial tear, and the best example of the latter is hemorrhagic disease of the newborn. The most important differential point is that, with anatomical defects, the bleeding is confined to a single organ system such as the gastrointestinal tract or the brain and involves only that organ system. When hemorrhage is due to a deficiency of a necessary hemostatic factor, it is usually generalized and involves multiple organs. The importance of this differentiation is obvious, for if an anatomical defect is suspected diagnostic energies should be directed toward finding the nature of the defect and whether it is surgically remediable or not. Conversely, if a deficiency of a necessary hemostatic factor is suspected the majority of effort should be made to define what factor or factors are deficient so that their replacement can be undertaken. As with any general clinical rule, there will be exceptions but we have found this differential point most useful and have followed it rather rigidly.

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ANATOMICAL DEFECTS

Of this group, intracranial hemorrhages secondary to trauma sustained during the birth process, and gastrointestinal hemorrhage associated with various congenital anomalies of that organ system are the most commonly seen.

INTRACRANIAL HEMORRHAGE

The time of onset of symptoms and the difficulties encountered during labor and delivery are the important differential features. With traumatic intracranial hemorrhage the onset of symptoms is usually very shortly after birth or within a few hours and, of course, trauma is most often associated with a difficult or precipitate labor and delivery. Treatment can be only symptomatic, but it is probably best to give the infant a small transfusion of whole blood or plasma as well as vitamin K. The purpose of this is to prevent secondary hemorrhage from the so-called physiological hypoprothrombinemia that occurs around the second

day of life. This will be more fully discussed later. It must be said that in our experience such treatment has probably had little effect on the eventual outcome in any given case.

GASTROINTESTINAL HEMORRHAGE

The first fact to be established is that it is indeed the infant's own blood that is being seen. During delivery, quite a bit of maternal blood can be swallowed by the infant and then vomited up again shortly afterward. This is best done by the Apt Test (1), which relies on the difference between fetal and adult hemoglobin in respect to their resistance to alkali denaturization.

The age of onset is of little diagnostic help in this group because of its variability, and as mentioned above the involvement of just a single organ system is the most significant differential point. In the case of the gastrointestinal system, if red blood is seen both per rectum and in the vomitus, this usually indicates bleeding from several places in the bowel, probably due to a deficiency of a hemostatic factor.

Therapy in this group is primarily surgical with correction of the anatomical defect, if possible. General supportive measures are given as indicated.

HEMOSTATIC FACTOR DEFICIENCIES

Hemorrhagic Disease of the Newborn. (2, 3, 4)

This disease is one of the few true pediatric emergencies. The therapy is specific, the response dramatic and the risk to life by delaying treatment is extreme. The hemorrhage is due to a deficiency primarily of prothrombin and serum prothrombin conversion accelerator (SPCA, Factor VII, proconvertin). The deficiency of these factors is in turn due to a deficiency of vitamin K which is necessary for their manufacture in the liver. Why a vitamin K deficiency should exist in some neonates is not known, though there has been considerable work done on the problem. Newborns are all born with normal prothrombin and SPCA levels but these levels start dropping shortly after birth, reaching their lowest point around two days of age, then rise again and are fairly normal by a week. In some babies this drop is more profound and these are the ones who hemorrhage. Somewhat paradoxically, this so-called physiological hypoprothrombinemia which occurs in all newborns is unaffected by the administration of vitamin K to either the mother or the infant. However, the severe hypoprothrombinemia associated with hemorrhagic disease of the newborn responds dramatically to vitamin K therapy.

Hemorrhagic disease of the newborn seldom occurs before the second day of life or after the fourth. The organs involved in order of their frequency are skin, gastrointestinal tract, brain and genitourinary tract. A common sequence of events is a baby who does well for the first day or so and then it is noticed that small bruises or excoriations on the skin, such as forceps marks, will suddenly become quite ecchymotic or a cephalohematoma will suddenly enlarge. In short order the baby will show other signs of a generalized bleeding diathesis with spontaneous ecchymotic formation, hematemesis, melena, hematuria or, most severe of all, signs of intracranial hemorrhage. The diagnosis is confirmed by obtaining a sample of unclotted venous blood and demonstrating a prothrombin content below 20 percent of normal.

Vitamin K and plasma or whole blood transfusions are the treatments of choice. The former is given to allow the infant to manufacture his own prothrombin and SPCA and the latter is given to replace the deficient factors until such time as they are made by the infant in sufficient quantities. Prothrombin and SPCA are relatively stable factors and are present in therapeutic amounts in ordinary stored whole blood or plasma and these need not be fresh. It has been our policy that when an infant is admitted with suspected hemorrhagic disease of the newborn of any degree of severity, a catheter is put into the umbilical vein and a sample of blood withdrawn for prothrombin time, hemoglobin or hematocrit determination, and cross match. Vitamin K_1 Oxide (2.5 mgm.) is then immediately administered intravenously followed by plasma in the dosage of 8-10 cc/lb. Whole blood is given if indicated by estimated blood loss or anemia. An additional 2.5 mgm. of vitamin K_1 oxide is given intramuscularly followed by another 2.5 mgm. the

next day. The effect of vitamin K on the prothrombin and SPCA levels is extremely rapid. As little as 1 mgm. given intravenously will virtually normalize the prothrombin time in one hour.

It will be noted that by this plan of treatment, therapy is started before an absolute diagnosis is made. This seems to be justifiable, for in some instances the risks of delaying treatment for as little as half an hour are too great to take.

Thrombocytopenic Purpura

In this disorder the hemorrhagic manifestations are due to a decrease in the number of circulating blood platelets. Platelets are not only necessary for normal capillary integrity, but are also involved in the coagulation of blood. The diagnosis of thrombocytopenia is suggested by the presence of the characteristic petechiae and ecchymoses associated with oozing from mucous membranes, melena, hematuria, hematemesis, or occasionally intracranial hemorrhage. The diagnosis is confirmed by finding a decreased number of platelets either by examining a peripheral blood smear or by direct count. Before symptoms become present the platelet count is usually below 50,000 cu. mm. Bleeding times and tourniquet tests are unreliable in the newborn.

Idiopathic Thrombocytopenic Purpura (6, 7)

In about fifty percent of the cases, the mothers have idiopathic thrombocytopenic purpura or have a history of it. In the others there is no such history and it has been hypothesized that this represents an isoimmune disease of the platelets analogous to erythroblastosis fetalis. This disease is familial and often occurs in one or more siblings. The onset of purpura is usually at birth or shortly thereafter. In general, it is a mild disease lasting from three to six months with overt hemorrhage a rarity, and usually requires no treatment. However, if bleeding does occur, steroid therapy and fresh blood transfusions can be used. Because of the self-limited nature of the disease, splenectomy is never indicated. Bone marrow examination will show an increase in young, immature negakaryocytes and no other abnormality.

Secondary Thrombocytopenia

Thrombocytopenia can be associated with a number of diseases such as bacterial infections, cytomegalic inclusion cell disease, erythroblastosis fetalis, toxoplasomosis, and can be secondary even to hemorrhage itself. In such instances, as stated above, the main problem therapeutically is the underlying disease itself with the appearance of purpura indicating a poor prognosis. Occasionally, however, bleeding will be a problem, especially in bacterial sepsis. When this is true the only available treatment is transfusions with fresh whole blood or platelet concentrates. Cortisone is usually contraindicated and splenectomy always is. In contrast to idiopathic thrombocytopenic purpura, examination of the bone marrow will reveal a moderate to severe decrease in the number of megakaryocytes.

Hemophilia and Related Diseases (7)

This group of diseases is due to the congenital absence of one or another factor in the blood necessary for its normal coagulation upon being shed. The most important members of this group are Classical Hemophilia and Christmas Disease. The others will not be discussed because of their extreme rarity.

Classical Hemophilia

This coagulation disorder is caused by the absence of the anti-hemophiliac factor (AFH) and results in a prolonged clotting time, abnormal prothrombin consumption, (8) and an abnormal thromboplastin generation test. (9) The disease is familial and is transmitted as a sex-linked recessive with the females being carriers and the males affected. Although the deficiency is present at birth, the hemophiliac is remarkably free of symptoms during the neonatal period and it is only later that he begins to have trouble. Following circumcision, however, he may bleed somewhat excessively, but not so often as one might think. Many hemophiliacs, even those of the severest variety, give a history of being circumcised without any undue difficulty. Nevertheless, if the mother gives a positive history for hemophilia in the male members of her family it is undoubtedly wise to postpone circumcision until the disease can be ruled out in the infant. The diag-

nosis is suggested by a positive family history and evidences of a generalized bleeding diathesis. It is confirmed by the characteristic laboratory findings mentioned above. These tests are somewhat specialized and are best done by a laboratory that is familiar with them. Treatment is directed toward correcting the coagulation defect by supplying the anti-hemophiliac factor in sufficient quantity. Since this factor is quite labile on storage it is best supplied by fresh whole blood or fresh frozen plasma intravenously in the dosage of 2-4 CC/lb every four hours.

Christmas Disease

(Plasma Thromboplastic Component Deficiency or PTC). Genetically and clinically, this disease is indistinguishable from classical hemophilia except that it is usually milder. The laboratory findings are also the same except for the thromboplastin generation test (9) and the fact that the blood from a patient with Christmas Disease will correct the coagulation deficiency of a patient with classical hemophilia and vice versa. Therapy consists in the administration of stored whole blood or plasma in the dosage of 2-4 cc lb every 12 hours. The blood or plasma does not have to be fresh since the PTC factor is relatively stable on storage.

Congenital Afibrinogenemia (10)

The clinical manifestations of this disease are similar to those seen in the hemophilias except that they are milder. Hemorrhage can occur following trauma or an operative procedure such as circumcision. The diagnosis is made by observing the incoagulability of the patient's blood even after the addition of thrombin. Therapy consists in replacing the fibrinogen by administering either plasma or fibrinogen itself in sufficient quantity to maintain the fibrinogen level between 60 and 100 mgm.%.

One word of caution, in the laboratory differentiation between afibrinogenemia and hemorrhagic disease of the newborn, because of drastically reduced or absent fibrinogen, the Prothrombin Time will be prolonged since there is no fibrinogen to form a clot. In afibrinogenemia, if fibrinogen is added to the patient's plasma the Prothrombin Time will be normal.

MISCELLANEOUS

For completeness' sake, a few miscellaneous diseases associated with hemorrhage will be mentioned. The first is rupture of the liver or spleen from vigorous resuscitative manipulation. Fortunately, this is rarely seen any more.

Full term female infants will commonly have a blood-tinged vaginal discharge. This is a benign occurrence due to the withdrawal of estrogens which the infant has acquired in utero from the mother's circulation.

The most common cause of bleeding from the umbilical cord is an improper cord tie. This should always be checked.

COMMENTS

An infant suspected of having a generalized bleeding diathesis such as hemorrhagic disease of the newborn should never be subjected to a femoral or internal jugular venipuncture. The reasons for this are that with such deeplying structures adequate hemostasis is difficult following the withdrawal of the needle. In these instances the umbilical vein can usually be cannulated with little trouble. Vigorous manipulation of the cannula, however, should never be employed.

Occasionally the physician will be faced with the problem of a severe hemorrhagic diathesis in an infant for which no definitive diagnosis can be made; the prothrombin and fibrinogen levels are normal, the platelets are adequate, and there is no family history of hemophilia or other bleeding disease. Unless the physician has available a laboratory familiar with the more specialized coagulation tests, he must decide on what therapy to use without knowing what coagulation factor or factors are missing. In such a case it is best to use fresh whole blood, fresh plasma or fresh frozen plasma in the dosage of 2-4 cc/lb every four hours. Fresh blood and plasma are more likely to contain any given factor that might be deficient in the patient than any other substance. When the initial bleeding has been controlled and the infant is in a quiescent phase, he can then be referred to a laboratory that is able to offer a

more exact diagnosis, so that future therapy and prognosis can be made on a more rational basis.

SUMMARY

The salient clinical and laboratory features of the various diseases causing hemorrhage during the neonatal period are discussed. They are divided into those caused by anatomical defects and those caused by a deficiency of a necessary hemostatic factor. The importance of this distinction, clinically, is stressed.

Of the anatomical defects, intracranial and gastrointestinal hemorrhage are presented.

Of the hemostatic factor deficiencies, hemorrhagic disease of the newborn, Hemophilia, Thrombocytopenic Purpura, and Afribrinogenemia are the ones discussed in detail, including their therapy.

Some miscellaneous diseases are included and a few comments are made.

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What Is Your Diagnosis?





FOR ANSWER SEE PAGE 58

Arkansas Public Health at a Glance*

Arkansas can point with pride to its record on the acceptance of fluoridation — the most effective, economical, and practical measure in combating civilized man's most widespread disease — dental caries. Out of the total population of the U. S., 95% of the people have been affected by dental caries. As high as 50% of two-year old children have one or more carious teeth. By the time the average child reaches school age, they have 3 or more carious teeth. When they reach 21 years of age, the average person has lost five teeth from dental decay. Of course, these figures hold pretty much true to form for Arkansas children.

While all tooth decay cannot be prevented, approximately 60% can be by fluoridation of public water supplies. There has been much interest among both lay and professional people concerning this measure as pointed out in the number of communities and people drinking fluoridated water to date. Arkansas has 33 cities fluoridating with over 300,000 people drinking fluoridated water. This amounts to about 40% of the people drinking their water from a public water supply. This places Arkansas close to the top of the list as far as the ratio of people drinking fluoridated water to the total number of people provided with water from community water supplies. The national average stands at 1 out of every 4 persons. Several other Arkansas communities are waiting for the installation of equipment and others have the measure under consideration.

During the fall of 1958, post-fluoridation surveys were conducted in the cities of Springdale and Jonesboro — Springdale having been fluoridated 6 years and Jonesboro 7 years. In the 6-year age group of children at Springdale, who had drunk fluoridated water since birth, a 50% reduction of dental decay was found. In Jonesboro, in the same age group, a 56% reduction was found. There was approximately a 30% reduction in the group of children that were 5 or 6 years old when fluoridation began. Since the benefits of fluoridation are lasting throughout life, eventually everyone of the community benefits.

While statistics are not available from all the fluoridating communities, physicians and dentists of these communities have indicated that there is a very definite improvement in the dental conditions of the children's teeth who have had fluoridated water for a number of years.

As for the adverse affects of fluoridation, no evidence has been found in Arkansas (or anywhere else) to indicate that any harmful affects were derived from fluoridation when used in the concentration recommended (one part fluoride to one million parts water).

The cost of fluoridation when compared to dental damage and repair is negligible. In Arkansas, the cost of equipment has ranged from $600 for the smaller cities to $3,500 for the larger ones. The average cost per person has been 5-15¢ per year. Over an average lifetime of 70 years and figuring the cost at 10¢ per person, a person will spend an average of $7.00 for a two-thirds reduction in tooth decay.

FLUORIDATION OF ARKANSAS PUBLIC WATER SUPPLIES

City	Population (1950)	Beginning Date
Arkadelphia	6,819	May 1953
Bald Knob	2,022	December 1953
Batesville	6,371	January 1957
Benton	10,148	February 1959
Bentonville	2,942	March 1955
Camden	14,597	July 1953
Cammack Village	987	June 1953
Clarksville	4,343	August 1955
Crossett	5,172	November 1958
Forrest City	7,607	March 1955
Geyer Springs	—	June 1953
Harrison	5,542	May 1953
Helena	11,296	November 1954
Hope	8,605	*
Jonesboro	16,310	October 1951
Judsonia	1,122	December 1953
Lewisville	1,239	January 1953
Little Rock	102,213	April 1951
Malvern	9,234	April 1959
Marianna	4,530	October 1954
Mountain Home	2,217	March 1955
Nettleton	1,382	October 1951
Newport	6,254	July 1954
North Little Rock	44,097	June 1953
Paragould	9,660	February 1956
Prescott	3,960	*
Searcy	6,024	December 1953
Sherwood	717	June 1953
Springdale	5,835	November 1952
Waldo	1,491	*
Walnut Ridge	3,106	January 1952
West Helena	6,107	September 1954
Wynne	4,142	March 1955

*Natural Fluorides—Blended Water

Communities with Fluoride approved awaiting instillation:

Berryville	Magnolia
Corning	Morrilton
Fordyce	Warren

*Sponsored by Arkansas State Board of Health.

Editorial

Hospital Management Speaks Its Mind

A. Allen Weintraub*

Some years ago I had the pleasure of reading Dr. L. H. Clemmon's[1] article "The Doctor Speaks His Mind!" Like Dr. Clemmons there is a certain unique category in my life that is reserved for two groups of individuals — my family and the members of the medical staff of the hospital. I feel free to and frequently do criticize both. If I disagree with them, I tell them so. If I want to reprove them severely, I do so, and believe it or not, at times I have been enraged at both of these groups. But as far as anyone else is concerned on the outside, I have the best family in the world and I work with the best medical staff in the world.

Never before has the Hospital Management-Medical Staff Team been offered a greater challenge to coordinate their efforts to bring about the best for the sick. Considerable misunderstanding and tension may arise between members of the Medical Staff and the Administration of the hospital, although when you reduce the problem to its lowest common denominator, one finds that there is little difference in their basic philosophy. The cause I find in most cases is a misunderstanding of one another's role arising from individual and departmental isolation and above all failure of communication.

Some medical staff members may believe that the hospital is overly interested in making money and that it overcharges its patients in many services while underpaying employees. Other staff members think that the hospital wants to engage in the practice of medicine. Hospital Management on the other hand may feel that the members on the medical staff frequently have no interest in the hospital except to consider its existence in terms of their own convenience. Hospital administrators must not concentrate so much on administrative problems that they forget their relationships with the members of the medical staff or neglect to achieve an understanding of their problems. The administrator should make every effort to be cognizant of the many problems inherent in the medical care of the patient. On the administrative side of the ledger the administrator must familiarize the members of the medical staff with the various problems of the hospital, especially economic ones that confront Hospital Management in the operation of the hospital.

Not long ago a man could take just pride in saying he had never been in a hospital in his life. It was a credit to his physical strength, and his boast almost always implied that he had somehow outsmarted the experts or at the very least showed them that, with common sense, anyone could escape the discomforts of hospital and physician's care. In truth, his escape was more from death than treatment, for hospitals were intended originally for care of the homeless sick, for emergency and terminal care.

But that was yesterday. While we are just as eager to avoid illness today, our attitudes have greatly changed. Hospitals and physician care no longer represent discomfort and pain to us, but a better chance of recovery, relief from pain and the maintenance of good health over many more years. This can only be true if genuine partnership between hospital administration and the medical staff can be accomplished.

Physicians must realize that hospital care is now beneficial to many more people than in the past. Although more patients are admitted more often to general hospitals, they stay for shorter periods of time, and since many illnesses require a

*Assistant Administrator, St. Vincent Infirmary, Little Rock, Arkansas.

shorter period of hospitalization the same number of beds per 1,000 population is presently giving a much broader and effective range of services to the public.

This more effective care is related directly, of course, to medical progress and new forms of surgery, early ambulation and drug discoveries, all have contributed. For this we are deeply indebted to the members of the medical profession.

Does this mean that our hospital problems are becoming simplier and easier to solve? Not at all; if anything, hospitals are more complex than ever before. This complexity in hospital administration and trying to keep pace with medical advances has precipitated a call for better administrators, a firmer grasp of the required coordination of skills to supplement the care of the physician. This has added greatly to the complexities of providing hospital care and to the problem of training intelligent personnel.

The general community hospital to which most patients are admitted for short terms, acute care, for example, now requires at least two employees for each bed patient. These are mainly skilled employees, professional and technical workers, nurses, dietitians, laboratory technicians, as well as service employees, who work to provide the setting which helps the physician render maximum care to the patient. As a result, and because of the now complicated equipment also employed, there has been a sharp increase in hospital costs. Costs which have risen at a much greater rate than can be accounted for by the depreciated value of the American dollar.

These, of course, are only a few of the broad problems and major challenges facing the hospital administrator-medical staff team today; that they are being met with energy and foresight is evident by the increase in the number of hospitals that are being accredited by the Joint Commission of Accreditation of Hospitals.

Without hospitals we could not enjoy the benefits brought by medical science, nor could physicians exercise their talents and new knowledge to the fullest potential.

To carry out our potential to the fullest extent requires a relationship of mutual understanding between hospital administration staff and the medical staff along with respect and confidence. Hospital administration and the medical staff should not compete in each other's area of responsibility — r a t h e r they should form a partnership, the prime objective of which is to provide every patient with high quality care. There are no differences in over-all aims, although there may be a difference of opinion concerning the methods used to achieve these aims.

"Everyone can be assumed to be willing to cooperate sincerely. Cooperation most often breaks down when there is a misconception of one's own rights and duties relative to those of his fellow workers. When there is no understanding there can be no communication; and where there is no communication there can be no cooperation." (2)

More than all of this, our hospitals, as integral factors in advances yet to come, will bring the future developments of medical science to all of us, playing an even greater role in our lives tomorrow.

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[1]Chief of OB at Cullman Hospital Alabama.
[2]Letournea. C. U. Trustee 7:1 (June) 1954.

Medicine in the News

Radiation Health Hazards

Washington, D. C. — The overriding health issue here — and one of the more debated subjects in any field — has been the dispute over radiation health hazards.

Out of the controversy, it is clear, will come a sharply stepped-up federal program of evaluating radiation levels, testing foods, and determining the effects of radiation on the human body.

Already, Arthur S. Flemming, Secretary of Health, Education and Welfare, has called for such an expanded program. And key congressmen are even more insistent that the government do more work in this area.

The growing concern over radiation levels and their effect on health has prompted harsh criticism of the Atomic Energy Commission by some lawmakers who contend the agency is minimizing radiation dangers because it handles the testing of nuclear bombs.

Agency officials claim they have held back no information from the public, but they agree on the need for a government-wide survey of the entire problem to determine how it might best be handled. At present, the AEC does the bulk of the research work on the biological effects of radiation.

The AEC and the Public Health Service have reported that the amounts of radioactive strontium-90 — the isotope that is released into the atmosphere by hydrogen bomb shots — have been far below estimated danger levels in food that has been tested.

However, Mr. Flemming has conceded that much more research has to be done. For example, he pointed out, little is known now about how much strontium-90 is retained within the body, though the amount consumed can be gauged.

A special advisory committee of 12 scientists and physicians that was appointed by the Health Service recommended after a year's study an exhaustive program of radiation research and protection as well as shifting prime responsibility from the AEC to the Health Service. The advisory group, headed by Dr. Russell H. Morgan of Johns Hopkins University, proposed also some sort of federal supervision over X-ray machines used by physicians.

Chairman Lister Hill (D., Ala.) of the Senate Labor and Public Welfare Committee has introduced legislation to carry out the advisory group's recommendations, and called for hearings on the measure.

Meanwhile, the National Academy of Sciences with the backing of the Administration, has undertaken a broad new investigation of the biological effects of radiation.

The World Medical Association President-Elect Named

Dr. Renaud Lemieux of Quebec, Canada was elected at the 35th Council Session of The World Medical Association in session in Sydney, Australia, March 25 to April 5, 1959 to fill the casual vacancy as President-Elect of the Association for the term 1958-1959.

Dr. Lemieux, Professor of Medicine at Laval University, a recent Past President of the Canadian Medical Association was nominated to fill the vacancy resulting from the untimely death of the incumbent, Dr. Leon Gerin Lajoie of Montreal, Canada.

Deputy Secretary General Named

Dr. Louis H. Bauer, Secretary General of The World Medical Association, announced that the Council of the Association had appointed Dr. John M. Bishop of Bellevue, Washington as Deputy Secretary General of The World Medical Association.

ANNOUNCEMENTS

International College of Surgeons Announces 11 Foreign Section Meetings

The International College of Surgeons announced the scheduling of 11 section meetings in Europe, Asia, and South America. The places and dates are as follows:

Thailand Section, Bangkok, May 21; German Section and German-speaking

Federation, Hamburg, June 1-3; French Section, Lyons, June 19-21; The Netherlands Section, Amsterdam, July 25-26; Finnish Section, Helsinki, August 8-9; Austrian Section, Vienna, August 19-20; Brazilian Section, Santos, in September; China-Hong Kong Section, Hong Kong, October 30; Thailand Section, Bangkok, November 2; China-Formosa Section, Taipei, Taiwan, in December; India Section, Jaipur, Rajasthan, in December.

For information, write to the Secretariat, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.

University of California 1959 Summer Nuclear Programs

The University of California will hold its Fourth Annual Summer Program in Nuclear Technology for Industry at Berkeley, California, during June, July and August, 1959. Three programs are being offered:

Nuclear Technology Study Program
June 22-August 28

Radiological Regulation and Use
July 20-July 31

Nuclear Technology Survey
July 13-July 17

Each program comprises a combination of special courses, laboratory work, seminars, field trips, and other activities. Both the Radiological Regulation and Use and Nuclear Technology Survey are designed to provide a working knowledge of general principles, broad concepts, and rational procedures in the use and control of isotopes and radiation.

Further information may be obtained from Engineering and Sciences Extension, Nuclear Energy Programs, 2441 Bancroft Way, University of California, Berkeley 4, California.

American Board of Obstetrics And Gynecology

Applications for certification (American Board of Obstetrics and Gynecology), new and reopened, Part I, and requests for re-examination Part II are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is August 1, 1959. No applications can be accepted after that date.

Candidates are requested to write to the office of the Secretary, 2105 Adelbert Road, Cleveland 6, Ohio, for a current Bulletin if they have not done so in order that they might be well informed as to the present requirements. Application fee ($35.00), photographs, and lists of hospital admissions must accompany all applications.

Obituary

Dr. Edwin Clare McMullen, 79, retired pediatrician, died March 9, 1959, at his home in Pine Bluff after a long illness. Dr. McMullen had practiced medicine in Pine Bluff from 1912 until his retirement in June, 1952. He had served for 14 years as Chairman of the Arkansas Division, American Academy of Pediatricians, and attended every national meeting while holding office. He had been presented emeritus degrees from the University of Indiana, Chicago University, Rush Medical School, and the American Academy of Pediatricians. Dr. McMullen was known for holding free child clinics for underprivileged children in Pine Bluff and other cities in Arkansas.

Dr. McMullen was born in Aurora, Indiana, and was graduated from Indiana University. He received his medical training at Chicago University and Rush Medical School in Chicago. He was a member of the First Presyterian Church in Pine Bluff, the Arkansas Medical Society, and a charter member of the Pine Bluff Rotary Club.

Dr. McMullen is survived by his wife, the former Clara Webster Brodhead.

Dr. Ernest J. Stroud, 52, Jonesboro physician and surgeon, died March 18, 1959, at Baptist Memorial Hospital in Memphis, after undergoing major surgery. Dr. Stroud was born in Jonesboro, and attended secondary schools there. He attended Arkansas State College and was graduated from the University of Arkan-

sas. He received his medical training at the University of Arkansas School of Medicine and University of Tennessee Medical School. He served his internship at Cleveland City Hospital, Cleveland, Ohio, and then joined his father in practice at Jonesboro. Dr. Stroud was a member and former president of the Craighead-Poinsett Medical Society, a Fellow of the American College of Surgeons, a member of the Southwestern Surgical Association, the Arkansas Medical Society, the American Medical Association and the Elks Club. He was active in the First Christian Church in Jonesboro and had served for a number of years as trustee. At the time of his death he was vice president of Citizens Federal Savings and Loan Association.

Dr. Stroud is survived by his wife, the former Kathleen Crotts, two brothers, Dr. Paul T. Stroud and H. A. Stroud, both of Jonesboro, one sister, Mrs. John S. Finch, Jr., of Corsicana, Texas, and several nieces and nephews.

Craighead-Poinsett Medical Society Memorial to Ernest J. Stroud, M.D.

The little bird sings its song in the tree top today, it chirps its song to its loving mate, they tell us this is life. Tomorrow it lies cold and still at the root of the tree, it sings its song no more, they tell us this is death.

The passing of Doctor Stroud serves to teach us that death is as natural as birth, and inevitable accompaniment of any life. The final event in a fruitful career is not a calamity, but a natural and normal termination.

There is no good reason why we should dread death when we have lived out our normal term of years, or regard it as appalling when it befalls our fellow member. It is a reason for mourning when a busy, useful life is cut off prematurely, as is the case with our fellow associate.

A doctor with his experience at the death bed knows even better than the layman the truth of this sad fact. Little does the layman know of the depression, despondency and humbleness of the doctor who loses the battle to the Grim Reaper, after fighting so bravely to save the life of his patient. Our brother who had so often witnessed the scene of death and met these disappointments was prepared when the time came and was not afraid.

The mystery of life and death are beyond our comprehension. What a comfort it must have been to our departed friend to realize that through the many operations, treatment and care he saved many from dying, and added many years to their lives, contributing hope and consolation and restoring many to a useful and normal life.

For us who remain to carry on, our loss is real. We will miss this good man who gathered with us often at our society meetings. He was able, honest, energetic and a conscientious physician, always holding the professional banner high. He delighted in his profession and was always ready to answer to duty in any capacity. He was progressive and kept up with all the advances in professional knowledge.

Let us hope that we who are left behind emulate his good traits and live in purity and Godliness, so that we, too, will bring honor to the memory of our confreres and dear ones.

Answer to What Is Your Diagnosis?

ANATOMY AND DIAGNOSIS: Esophagus Achalasia; Heart Situs inversus.

Age, 73; race, C; Sex, F.

CLINICAL DATA: History of aching pain in low back, left hip and left knee. Pain has been worse in the last week and in damp weather. She has *occasional* difficulty swallowing food, but even then with no pain.

LAB DATA:

SURGERY:

PATHOLOGY:

X-RAY FEATURES: There is right-sided geart abd aorta and a large, dilated esophagus. The upper ⅓ of the esophagus is deviated to the left. The esophagus then makes a right angle turn, and the lumen appears normal for 5 or 6 cm. The lower ⅔ is also markedly dilated.

*University of Arkansas Medical Center Department of Radiology.

PERSONALS AND NEWS ITEMS

Drs. Bascom P. Raney and Davis S. LeVine have announced the recent opening of the new Raney & LeVine Clinic in Jonesboro.

The Union County Medical Society members and their wives honored Dr. Garland D. Murphy, Sr., of El Dorado, at a dinner on Tuesday, March 10, commemorating his 50th year in the practice of medicine. Dr. Murphy was presented with a gold 50-year medical lapel pin and a piece of luggage.

Dr. Thomas G. Johnston of Little Rock was given the annual Bela Schick Fellowship Award on March 19, 1959, for presenting the best paper at the 15th convention of the American College of Allergists. Dr. Johnston's paper concerned the dangers involved in the administering of penicillin.

Two Little Rock physicians, Dr. Willis E. Brown and Dr. John B. Nettles, were speakers at the seventh annual clinical meeting of the American College of Obstetricians and Gynecologists held April 6-8 at Atlantic City, New Jersey.

Dr. Daniel B. McCall, a practicing physician for 59 years at Lawson, Arkansas, was recently honored at a Masonic meeting in El Dorado. Dr. McCall was presented with a 50-year Masonic pin.

One of the honorees at the 40th Anniversary observance on March 26 of the American Legion in Magnolia, Arkansas, was Dr. Horace E. Ruff of Magnolia. Dr. Ruff was one of the 500 persons present at the organization meeting of the Legion in Paris, France, in March, 1919.

Dr. J. W. Case has announced the association of Dr. Lloyd Gregory at the Walnut Ridge Hospital, for the practice of medicine surgery and obstetrics. Dr. Gregory was formerly associated with the Baptist Hospital and St. Vincent's Infirmary in Little Rock.

Two Clarksville physicians, Dr. G. R. Siegel and Dr. James M. Kolb, attended



Dr. James M. Kolb and Dr. Randolph Ellis present a book of letters from his friends to Dr. Fount Richardson upon his inauguration as President of the American Academy of General Practice in San Francisco April 8, 1959.

the annual session of the American Academy of General Practice held in San Francisco April 3 through April 9. Dr. Kolb was one of the two Arkansas delegates to the session. In addition to attending the meeting Dr. Siegel visited his daughter in Santa Clara, California.

Dr. Joseph J. Goss, psychiatrist on the staff of the Veterans Administration Hospital in North Little Rock, has been certified as a Diplomate in Psychiatry by the American Board of Psychiatry and Neurology.

The appointment of Dr. Karr Shannon, Jr., as chief of the psychiatric service at the Shreveport Veterans Administration Hospital was announced recently. Dr. Shannon recently completed a three-year residency in psychiatry and neurology at the North Little Rock Veterans Administration Hospital.

Dr. Milton D. Deneke, West Memphis physician, has been re-appointed for a two-year term as Crittenden County health officer. Dr. Deneke has served two previous terms in the same capacity.

During the Arkansas Medical Society Annual Session in Fort Smith, a breakfast meeting was held for the members of the 50-Year Club, at which time Dr. T. E. Rhine of Thornton was elected president, Dr. W. A. Fowler of Fayetteville was chosen president-elect, and Dr. J. H. McCurry, of Cash, was elected secretary. Speakers were Dr. D. W. Goldstein, Dr. Harold Perry, of the Mayo Clinic, and Dr. Wm. R. Brooksher.

A number of Arkansas physicians attended the Southwestern Surgical Congress in Denver March 28th-April 3rd. Dr. Fred Krock of Fort Smith was installed as president during the meeting. Also attending from Arkansas were: Dr. Joe Rushton, Magnolia; Dr. Jean Gladden, Harrison; Dr. W. E. Jennings, Rogers; Dr. Louis Good, Texarkana; Dr. Jerome Landy, Little Rock; Dr. Frank Lockwood, Fort Smith; Dr. Bishop of Little Rock; Dr. Hibbs of Texarkana, and Dr. M. C. Hawkins, Jr., of Searcy. Drs. Bishop, Hibbs and Lockwood delivered scientific papers at the meeting. Las Vegas, Nevada, was chosen as the site for the next meeting.

Dr. M. C. Hawkins, Jr., of Searcy, will attend a Regional Conference on Hospital Planning at the invitation of the American Medical Association. The Conference is sponsored by the American Hospital Association and the Public Health Service.

Dr. R. B. Robins of Camden, Arkansas Member of the AMA Board of Trustees, was one of the principal speakers at the Pharmaceutical Manufacturers Convention held in Boca Raton, Florida, in April.

Proceedings of Societies

The Arkansas State Radiological Society met at Fort Smith on April 14. Officers elected at the meeting were Dr. E. A. Mendelsohn, Fort Smith, president; Dr. E. M. Cooper, Jonesboro, vice-president; Dr. J. B. Scruggs, Little Rock, secretary-treasurer; Dr. J. D. Calhoun, Little Rock, counselor to the American College of Radiology.

Dr. Calvin Dillaha, of Little Rock, was elected president of the Arkansas Dermatological Association, and Dr. Lawrence Zell, of Little Rock was elected secretary, at meetings held in Fort Smith during the Arkansas Medical Society's 83rd Annual Session. Dr. Davis W. Goldstein, and Dr. Holden McCraney, of Fort Smith, were in charge of the program for the meetings, which were attended by some 40 doctors from six states. Dr. Harold Perry, dermatologist at the Mayo Clinic, was one of the principal speakers.

The Craighead-Poinsett Medical Society met April 8, 1959, at the Jonesboro Country Club. The speaker for the evening was Dr. Thomas Johnston, Associate Professor of Allergy, University of Arkansas School of Medicine, whose subject was, "Allergic Drug Reactions, Especially Penicillin".

In the March 22, 1959 meeting of the HIP Committee, the question of uniform health and accident claimants blanks was thoroughly discussed. Based upon the experiences related by the invited hospital administrators, the insurance segment of the committee agreed that a need for uniform claimants' blanks existed and this segment agreed to work toward solution and adoption of this type blank. The present plan is to invite individual insurance writers to formulate a blank acceptable to them and report back to the full committee.

It is hoped that the institution of uniform hospital and physicians' statements on April 15, 1959, followed by the uniform claimants' statement at as early a date as is possible, will solve many of the clinical and administrative problems that have plagued all physicians and hospitals in the past.

Contributors to the American Medical Education Foundation, March, 1959:

Milton D. Deneke, West Memphis	$10.00
J. H. McCurry, Cash	25.00
	$35.00

Woman's Auxiliary

Mrs. D. J. McCaughey was hostess for the April luncheon meeting of the Woman's Auxiliary to the Jefferson County Medical Society on Friday, April 3, at her home. Co-hostesses were Mrs. James Rhyne, Mrs. L. K. Hundley, and Mrs. B. D. Luck. Mrs. E. L. Hutchison, president, installed officers for the coming year and appointed committee chairmen. New officers are: Mrs. James T. Rhyne, president; Mrs. B. H. Cheek, vice president; Mrs. W. R. Meredith, treasurer; Mrs. J. R. Pierce, Jr., president-elect; Mrs. W. T. Lowe, historian; Mrs. D. J. McCaughey, secretary; Mrs. E. L. Hutchison, parliamentarian; and Mrs. O. C. Raney, publicity secretary.

Arkansas County doctors were honored by members of the Auxiliary to the Arkansas County Medical Society at a dinner at the Rice Paddy Motel in Gillett. Mrs. Gordon Oates of Little Rock, state president of the Auxiliary, was the speaker of the evening. New officers elected at the meeting are: Mrs. John Hestir, president, and Mrs. George Pollock, secretary-treasurer.

Mrs. W. E. Knight was elected president of the Sebastian County Medical Society Auxiliary at the April 6 meeting at the home of Mrs. Ben H. Pride, outgoing president. Other officers named were Mrs. Cecil Boulden, vice president, Mrs. Roger Bost, treasurer, and Mrs. Morton Wilson, secretary.

The Bowie-Miller Medical Auxiliary commemorated National Doctors Day with a luncheon at the cafeteria of Wadley Hospital. Hostesses for the day were Mrs. Richard Brunazzi, Mrs. C. E. Kitchens, Mrs. John Walter Jones, Mrs. E. T. Ellison and Mrs. W. D. Walker.

Book Reviews

CORRELATIVE NEUROANATOMY and FUNCTIONAL NEUROLOGY. Joseph G. Chusid and Joseph J. McDonald. Lange Medical Publications, Los Altos, Calif. Pp. 337. 1958. $4.50.

This textbook is well named and the authors succeed to a large degree in the difficult task of correlating neuroanatomy with pathology of the nervous system. Perhaps one of the most difficult fields for the medical student and general physician is that of neurology. The central nervous system being so complex and the pathology being somewhat different from that elsewhere in the body makes this a difficult and somewhat neglected field of training. Textbooks which through diagrams and simplified text shorten and clarify this difficult field are desirable. These authors have in no sense printed an encyclopedic book but it is comprehensive and reasonably complete. The diagrams are good. The book is recommended to both medical students and general physicians. AK

ORR'S OPERATIONS OF GENERAL SURGERY. George A. Higgins, M.D., F.A.C.S. Associate Professor of Surgery, University of Kansas School of Medicine and Thomas G. Orr, Jr., M.D., F.A.C.S. Associate in Surgery, University of Kansas School of Medicine, Illustrated, Pp. 1016, 3rd Edition; 1958, $20.00, W. B. Saunders Company, Philadelphia.

This excellent text of general surgery has gone into its third edition notwithstanding the sudden

loss to the profession of its original author, Dr. Thomas Orr.

The format of this new text is not altered considerably. There are new chapters added on surgery of the head and neck, and some of the material on the surgery of congenital anomalies has been entirely rewritten. The book remains moreover as one of the finest examples of its kind for the teaching of surgery and for a ready reference. The many general practitioners who do their own surgery, (especially those in the Mississippi Valley and West), will find this book especially useful.

An example is taken of the operation of Pyloroplasly which was clearly demonstrated in both the second and third editions. It is hard to see why anyone with even a moderate amount of surgical skill could fail to appreciate the simplicity and the clarity with which the authors discuss that particular operation. It goes further and proves that what was yesterday's rarity is today commonplace. This is true indeed of pelvic surgery, which in an even one hundred years has progressed to the point that many surgeons, whether they be general practitioners or specialists, are managing with remarkable skill the various surgery conditions of the female in many scattered hospitals, both large and small.

Such a wide dissemination of surgical skill is the result of teachers and texts like the one by Dr. Thomas Orr, and this new edition is a worthy successor. It serves well as a quick reference volume.

The illustrations are profuse, but chosen with much care and consideration. The treatment of wounds, the healing of tissues, preface the main body of the text. Some of the procedures, as hernia repair, are reported in considerable fine detail and that particular chapter serves both as text and as atlas for this operation.

The student and the general surgeon alike will find this work most valuable.

NEUROLOGICAL BASIS OF BEHAVIOUR. Ciba Foundation Symposium. Little, Brown & Company. Boston, Mass. Pp. 387. 1958. $9.00.

This book is an extension of the information relating the function of the brain to its anatomy. The symposium reviews some basic information on the subject and brings out some of the more modern research. One of the most interesting chapters is the Neurological Basis of Responses to Stress; for example, some experimental animals became excessively obese after forced swimming—even pituitary tumors developed. There is a good discussion of ablation techniques, drug effects, brain enzymes, etc. All in all this is a most stimulating and fascinating collection of papers. It is heartily recommended to those interested in internal medicine and neurology.

TUBERCULOSIS ABSTRACTS

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The Arkansas Tuberculosis Association

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TUBERCULOSIS AND THE FAMILY PHYSICIAN

The Modern Treatment of Tuberculosis Outlined Here Places the Family Physician in the Key Position. The Tools and Services of the Tuberculosis Hospital Should Be Available to Him.

The family physician traditionally has played a larger role in the diagnosis of tuberculosis than in its treatment. Recently, however, tuberculosis has become a much more manageable disease, and the need for long-term institutional care has been sharply curtailed. Even if one agrees that almost all cases of tuberculosis are to be hospitalized at the beginning, the family physician can and should take a larger part in the treatment and clinical management of these patients than he has in the past.

Tuberculosis still is not an easy disease to treat nor is the treatment routine. There are many varieties of tuberculosis. It is not enough to identify the location of tuberculosis lesions, but one must also know whether these lesions consists predominantly of inflammatory elements or whether nocrosis is advanced and cavitation is present and to what extent reparative changes already have taken place. Prognosis in the antimicrobial era depends more on the duration of tuberculous disease before treatment is started than on its extent. If treatment is prompt and adequate in the early stages of acute cases, one can expect almost complete resolution of pneumonic patches and prompt closure of even large cavities.

In hospitalized patients strict bed rest appears to be unnecessary. In severe tuberculosis with acute symptoms it is more important to begin drug treatment promptly than it is to have the patient admitted promptly to a hospital. This assumes that the diagnosis has been confirmed and that the drug regimen selected is adequate. But unless the patient is markedly prostrated and debilitated or has hemoptysized, he

does not require strict bed rest or much nursing care. Rather, it is for the protection of his contacts and of the public and for other ancillary objectives that a period of hospitalization usually is advisable.

DRUG REGIMEN

An adequate drug regimen for initial treatment should include isoniazid, the most potent of the available therapeutic agents. This may be coupled with either streptomycin or para-aminosalicylic acid (PAS). The use of two drugs is customary, although there is evidence that in noncavitary pulmonary tuberculosis and in certain types of extrapulmonary tuberculosis isoniazid alone is adequate. PAS is the more commonly used companion drug, but in miliary or meningeal tuberculosis and in severe pneumonic forms, streptomycin, the most potent drug, is available. If streptomycin is used, it should be given daily, in doses of 1 gm. intramuscularly, at least during the first month or two. Regular streptomycin, rather than dihydrostreptomycin, is the drug of choice because of the considerably greater auditory toxicity of the dihydro derivative. The usual oral dosage of isoniazid is 5 mg. per kg. per day or for adults an average of 300 mg. total daily dose, divided in two or three individual doses of 150 mg. or 100 mg. PAS usually is given orally in a total daily dose of 12 gm., divided in three or four individual doses with meals. Children tolerate these drugs better than adults do and may receive larger proportionate doses.

In most forms of tuberculosis, surgery is rarely necessary, at least until after several months of conservative antimicrobial therapy. Progress in pulmonary tuberculosis should be gauged adequately by periodic chest films and regular sputum or gastric cultures at monthly intervals. If clinical progress is satisfactory, it is best to adhere to the same drug regimen despite any in vitro evidence of drug resistance.

TOXICITY OF DRUGS

Changes in therapy are most often dictated by manifestations of drug toxicity. Isoniazid is the least frequent offender, PAS the most poorly tolerated because of gastrointestinal disturbances, and streptomycin the most carefully to be watched because of the potential serious damage to the eighth nerve and because of its potential nephrotoxity as well. Streptomycin should not be used in full dosage when there is any evidence of reduced kidney function, or in the elderly except for most compelling indications. Sometimes it is necessary to have recourse to the second line of antituberculous drugs, which include viomycin, cycloserine, and pyrazinoic acid amide. These may be useful in older, previously treated, chronic, inoperable cases.

In the initial course of treatment, it is now usually possible to bring the case to a successful outcome provided (1) the drug therapy is uninterrupted, (2) any ancillary surgical procedures be performed at the proper time, and (3) the drug therapy is continued for a sufficiently long time. The duration of therapy should never be less than one year, and for most types of tuberculosis it should be up to two or three years. Treatment with isoniazid alone is usually sufficient after the first year or six months after surgery if bacteriologic conversion of body secretions, such as sputum, gastric washings, or (in the case of renal tuberculosis) the urine, has been attained. Healing or surgical excision of open lesions also should have taken place before the drug therapy is simplified to the single drug, isoniazid.

It is clear from this outline of a therapeutic program, that most newly diagnosed cases can be managed for the greater portion of the period of active treatment outside of hospitals. The initial period of hospitalization will rarely need to be for longer than six or eight months, and often a few weeks will suffice.

SURGERY

The salient fact which has emerged in the last few years is that the indications for surgery in tuberculosis are diminishing. The incidence of relapse following successful and long-continued medical therapy is proving to be remarkably low. The results of conservative treatment of renal tuberculosis have been so successful that the indications for nephrectomy in this disease can with little justification be considered absolute or urgent. Only in renal tuberculosis is there any evidence that simultaneous administration of all three standard drugs (isoniazid, streptomycin, and PAS) is advantageous.

The policy of deferring surgical procedures on the treatment of bone and joint

tuberculosis until after several months of chemotherapy is becoming increasingly important. In other "surgical" forms of tuberculosis, such as the tuberculosis of superficial lymph nodes, the surgery is best delayed in most cases.

From the foregoing outline it is evident that much of the responsibility for the therapeutic program must increasingly fall on the family physician. What tools will the family physician need beyond those he can provide in his office? He will need to have access to all the tools which now are provided in tuberculosis hospitals. He will need to have a cooperative liaison with inpatient hospital services. Coordination between the hospital and home phases of management is essential.

The communicability of tuberculosis is still a paramount consideration. Tuberculosis never can be treated casually or without regard to the health of others. The relationship is in its very essentials not merely between the physician and the patient but between these two and the entire community.



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Complications of Varicella**

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As a rule varicella is a benign disease of childhood. The commonly occurring complications are usually mild and consist of local secondary infection of varicella lesions with staphylococcus aureus and hemolytic streptococci. Usually this type of complication consists only of local pustulation and is so frequently associated with the varicella exanthem that it can hardly be considered abnormal. Skin complications of greater severity and thus of special importance also may occur with similar bacteria but result in widespread furuncles, cellulitis and erysipelas.

Development of bacteremia and septicemia (also with hemolytic staphylococcus aureus and hemolytic streptococci) from local secondary skin infections is a well-recognized medical emergency, requiring not only prompt recognition but also proper means of energetic therapy.

Although the frequency of severe complications of varicella is extraordinarily low (especially in light of the countless cases of varicella occurring annually) reviews (1, 2) of this subject in recent literature emphasize a number of unusual primary complications which are extremely serious.

These reports point out, for example, that the varicella virus has a unique biologic tendency under certain circumstances toward wide visceral dissemination which may result in special types of exceedingly serious and often fatal complications. Some of these complications consist of the development of myocarditis, nephritis, pneumonitis, hepatitis, pancreatitis and orchitis. That direct involvement of widespread tissues of the body may occur is borne out by the fact that eosinophilic inclusions are observed in these tissues, for example, the pericardium, kidney, liver and lung.

VARICELLA ENCEPHALITIS

Involvement of the brain in varicella follows a pattern which is similar histologically to that observed in other post-infectious encephalitides — namely, a demyelinating pathological process not unlike that seen in fatal instances of rubeola and rubella. Typical clinical manifestations of varicella encephalitis, however, frequently consist s o l e l y of cerebellar ataxia of varying degree. Indeed, this may be the only clear-cut neurological manifestation of varicella encephalopathy. Involvement of cranial nerves (especially neuritis of the optic nerve), and myelitis are less frequently seen.

Older persons are decidedly more prone to secondary involvement of the central nervous system, but generally, the over-all prognosis is favorable.

STEROID TREATMENT AND 'FULMINATING' VARICELLA

Varicella with a fulminating course and rapid death may occur in persons receiving cortisone and related adrenal corticoid hormones (3).

Pronounced vascular damage with widespread edema and hemorrhage is the only notable pathologic finding. Sites of focal hemorrhage are often associated with indirect evidence of local viral infection.

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This type of malignant complication is an extremely frightening one, and should serve to emphasize the possible danger of varicella in nonimmune persons who are taking corticosteroid treatment. It would appear that long term periods of treatment for rheumatic fever, nephrosis, rheumatoid arthritis and a variety of collagen diseases provide increased opportunity for a patient to be exposed to persons with varicella, despite the best of well-intended precautions.

Convulsions with Hypoglycemia

Wright, Lipson and Mortimer (4) described an unusual syndrome occurring in three infants (3 to 6 months of age) with varicella.

Intractible convulsions developing between the 4th and the 6th day of the skin eruption of varicella were found to be associated with profound hypoglycemia. All three infants died within 24 hours despite special treatment efforts consisting of anticonvulsant measures and of glucose and cortisone given parenterally.

Demyelinization was not noted by autopsy examination. The only clear-cut findings demonstrated were cerebral congestion and cerebral edema.

Varicella Pneumonia

Unquestionably varicella pneumonia occurs more frequently in adults than in infants and children; (2, 5) and following the pattern of similar viral infections, varicella pneumonia in adults is usually a grave illness.

Emphasis on varicella pneumonia has been little stressed in the medical literature, and in fact, the paucity of case reports is conspicuous.

As an example, the occurrence of varicella pneumonia in adults has been officially documented only fifty times in the literature in the past fifteen years. These reports support convincingly, however, the continual observation that varicella pneumonia is an exceedingly serious sickness, especially in an adult, and cannot be dealt with lightly.

A nonimmune adult usually contracts varicella from one of a variety of separate human exposures: from his own children and grandchildren, from neighborhood children, from incidental human contacts (theater, train, airplane, etc.) and from persons with infection with herpes zoster ('shingles').

Clinical signs of complication of primary varicella pneumonia develop typically between the 2nd and the 5th day after the appearance of the acute varicelliform exanthem. Temperature is usually high, and clinical manifestations of respiratory tract involvement usually increase to a point of moderate severity and even alarming intensity. This stage of the illness is characterized by increasing chest pain and breathing effort, and by coughing, bloody sputum, and cyanosis.

X-ray examination of the chest (even before clinical manifestations become clearly pronounced) usually shows impressive findings. These are diagnostic of varicella pneumonitis and consist of dense nodular infiltrates of varying size. They are usually diffuse and bilateral, occasionally coalescing to give a large area of consolidation and of pleural effusion.

The course of varicella pneumonia is frequently arduous for seven to twelve days, the adult often being gravely ill and occasionally dying. (5) Complement-fixing antibodies to the infection usually start to rise by the 5th day and on occasions recovery may take place in a week.

Of special interest is the observation that roentgenograms of the chest may show the nodular-like infiltrations in the lung for as long as four to six weeks, and in some instances for several months. In these persons the differential diagnosis, especially regarding the pulmonary changes, includes widespread tuberculous and fungous infection, sarcoidosis and carcinomatosis (of thyroid and kidney).

Heretofore the varicella virus has not been recovered from the lung of subjects who have died of the effects of varicella pneumonia. Typical inclusion bodies of varicella infection have been found in the lungs however, and in addition, susceptible persons (relatives, nurses, etc.) caring for the patient with varicella pneumonia have contracted typical varicella after a proper incubation period.

SUMMARY

Varicella is ordinarily a mild disease. Some of the recently reported serious complications of varicella are reviewed.

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Hypnosis in Painful Terminal Illness**

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The use of psychological measures in the treatment of human illness, whether organic or psychological or a combination of both, is as old as human history. In fact, the psychological aspect of medicine constitutes the art of medicine and transforms the physician from a skillful mechanic or technician into a needed human source of faith, hope, assistance and, most importantly, of motivation for the patient toward physical and mental health and well-being.

Hence, with this integral relationship between psychology and medicine, it is not surprising that hypnosis as a psychological measure should be considered, seriously and rightly, in the treatment of painful terminal illness, particularly the last stages of malignant disease.

However, as a preliminary statement, it must be emphasized that hypnosis is not an absolute answer and that it cannot replace other medical procedures. Rather, it is no more than one of the adjuvants or synergistic measures that can be employed to meet the patient's needs.

To present this topic to you, it might be well first to define both hypnosis and the rationale of its use.

Essentially, hypnosis is a state of intensified attention and receptiveness and an increased responsiveness to an idea or to a set of ideas. There is nothing magical or mystical about it; it is attentiveness to, absorption in and responsiveness to an idea or a whole group of ideas. We see this sort of thing repeatedly in everyday living where hypnosis is not involved —the automobile driver who forgets everything he should keep in mind because he is fascinated by the white line in the middle of the highway or by the scenery along the roadside, or the man unwisely and so intensely interested in a woman that he literally forgets everything that common sense has taught him, just to cite examples from ordinary daily life.

In medicine, as well as in dentistry, this normal everyday capacity for intensely directed attention can be employed to concentrate and redirect a patient's attentiveness and responsiveness in an altered fashion so that he benefits through a new and learned responsiveness to s e l e c t e d stimuli. This constitutes the use of hypnosis in painful terminal disease.

In treating such patients, the question is not one of treating the illness itself, since the patient is both dying and suffering painfully. The primary problem is how to treat the patient so that his human needs may be met as much as possible. Thus, it becomes a complex problem of what the physical body has to have and what the patient as a personality needs, since cultural and individual psychological patterns are of as much and perhaps greater i m p o r t a n c e than the physiological experience of pain.

Before this audience, there is no need to offer suggestions concerning the proper medically oriented procedures to em-

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ploy in meeting the physical needs of the body.

However, this statement should be made about meeting the physical needs of the body. Such treatment is just as important as the treatment of the psychological needs of the patient as a personality and should never be discredited. In fact, it is a prerequisite for any psychological treatment. Therefore, the question becomes, what is the adequate but at the same time the minimal treatment of the body? That it be minimal though adequate is essential, because in terminal painful disease, sedatives, analgesics and narcotics are employed that may deprive the patient of the privilege of knowing that he is alive and of enjoying what pleasures yet remain; also, they deprive his relatives of adequate contacts with the patient.

Hence, medication should be administered only in those quantities that meet the physical requirements without obstructing or defeating those psychological needs vital to the total life situation and which also require satisfactions even more than the physical.

To illustrate this point and to clarify the foregoing discussion, three case reports will be cited:

Report 1

The first patient was a 37 year old woman of grade-school education, mother of four children, dying of advanced metastatic carcinomatous disease originating in the uterus. For the three weeks preceding hypnosis, she had been kept in a narcotic semi-stupor, since this was the only way to control her pain, to enable her to sleep, and to enable her to eat without extensive nausea and vomiting.

The woman understood her condition and resented helplessly her inability to spend the remaining weeks of her life in contact with her family.

The family physician finally decided to have hypnosis employed.

The situation was explained to the woman and narcotics were omitted on the day she was to be hypnotized so that this could be done without excessive drug interference.

Approximately four continuous hours were spent with the woman, systematically teaching her, despite her attacks of pain, how to go into a trance, how to develop a numbness of her body, how to absorb herself in a state of profound fatigue so that she could have physiological sleep despite pain, and how to enjoy her food without gastric distress. No elaborate explanations were necessary, since her educational limitations and the desperateness of her situation motivated a ready acceptance of suggestions without questioning doubts.

Additionally, she was trained hypnotically to repond to her husband, her oldest daughter and to her family physician, so that hypnosis could be readily reinforced in the event of any new development.

This one time was the only occasion on which the patient was seen by the writer. Her motivation was so great that the one hypnotic training session was sufficient.

The previous medication, it was found, could actually be discontinued, except for one heavy hypodermic administration late Thursday evening. This gave her additional relief and it allowed her to be in full contact with her family in a rested state on the week-ends. Also, she shared in the family evening activities during the week.

Six weeks after her first trance, while laughing and talking to her daughter, she suddenly lapsed into a coma and died two days later without recovering consciousness.

Those six weeks had been decidedly happy and pain-free for her.

Report 2

This 35 year old woman, the mother of four small children, the wife of a professional man, was seen five weeks before her death from lung cancer.

For a month before hypnosis, she had been almost continuously in a narcotic stupor, since the pain she experienced was unbearable to her.

She asked that hypnosis be employed and voluntarily went without medication that entire day in her own self-determined effort to ready herself for hypnosis.

She was seen at 6:00 P.M., bathed in perspiration, suffering acutely from constant pain and greatly exhausted.

Nevertheless, approximately four hours of continuous effort were required before a light trance could be induced. This light stage of hypnosis was immediately utilized to induce her to permit three things to be accomplished, all of which she had consistently refused to allow in the very intensity of her desire to be hypnotized. The first of these was the hypodermic administration of 1/8 grain of morphine sulfate, a most inadequate dosage for her physical needs, but one considered adequate for the immediate situation.

The next was the serving to her of a pint of rich soup and the third was the successful insistence upon an hour's restful physiological sleep.

By 6:00 A.M. the patient, who finally proved to be an excellent somnambulistic subject, had been taught successfully everything considered to be essential to meet the needs of her situation.

The procedure followed was probably unnecessarily comprehensive, but the situation did not warrant any approach less inclusive.

The first step was to teach her positive and negative hallucinations in the modalities of vision, hearing, taste and smell. Then she was taught positive and negative hallucinations in the areas of touch, deep sensation and kinesthesia, and in relation to this latter type of sensation, she was taught body disorientation and dissociation.

When these learnings were sufficiently well acquired, the patient was given suggestions for glove and stocking anesthesias and these were extended over her entire body.

Thereupon it became possible to teach her rapidly combined partial analgesias and anesthesias for both superficial and deep sensations of all types. To this was added a combination of both body disorientation and body dissociation so that these latter could supplement the former.

The patient was not seen again, either professionally or socially, but her husband telephoned or gave reports in person daily concerning the patient's condition.

She died suddenly five weeks later, in the midst of a happy social conversation with a neighbor and a relative.

During that five weeks' period she had been instructed to feel free to accept whatever medication she needed.

Now and then she would suffer pain, but this was almost always controlled by aspirin. Sometimes a second dose of aspirin with codeine was needed and, on half a dozen occasions, 1/8 grain of morphine was needed.

Otherwise, except for her gradual progressive physical deterioration, the patient continued decidedly comfortable and cheerfully adjusted to the end.

REPORT 3

The third patient was a professionally trained man of advanced years, who understood fully the nature of his carcinomatous illness. Because of his educational background, it was both necessary and advantageous to develop the hypnotic suggestions with care in order to secure both his intellectual and his emotional cooperation.

While resigned to his fate, he resented greatly the narcotic stupors he developed when given sufficient medication to control his pain. It was his earnest desire to spend his remaining days in the fullest possible contact with his family, but this he found difficult because of the severely agonizing recurrent pains he suffered. As a solution, he requested hypnosis and he himself discontinued medication for twelve hours in order to avoid a possible narcotic interference with a trance development.

At the first hypnotic session all suggestions were directed to the induction of a state of profound physical fatigue, of overwhelming sleepiness, and of a need to enter physiological sleep and to rest sufficiently to permit the induction of an hypnotic trance. A light trance was induced that almost immediately lapsed into a physiological sleep of about thirty minutes' duration. He aroused from this definitely rested and most firmly convinced of the efficacy of hypnosis.

A second, and this time medium, trance was then induced. Systematically a series of suggestions was given in which a direct use was made of the patient's actual symptomatology. The rationale for this was to validate the hypnotic sugges-

tions through utilization of the experiential validity of his symptoms.

Thus the patient was told that his body would feel tremendously heavy, that it would feel like a dull, leaden weight, so heavy that it would feel as if sodden with sleep and incapable of sensing anything else except heavy tiredness. These suggestions, repetitiously given and in varying phraseology to insure comprehensive acceptance, were intended to utilize the patient's feeling of distressing weakness, previously unacceptable to him and to combine it with the complaint of "constant, heavy, dull, throbbing ache." In addition, suggestions were given that, again and again, as he experienced the "dull heavy tiredness" of his body, it would periodically go to sleep, while his mind remained awake. Thus his distressing feeling of weakness and his dull throbbing ache were utilized to secure a redirection and a reorientation of his attentiveness and responsiveness to his somatic sensations and to secure a new and acceptable perception of them. Also, by suggesting a sleeping of the body and wakefulness of the mind, a state of dissociation was induced. The next step was to reorient and redirect his attentiveness and responsiveness to the sharp, brief, constantly recurring, agonizing pains from which he suffered, usually less than ten minutes apart. These pains, while actually brief, that is, less than one minute in duration as timed by a watch, were experienced by the patient subjectively as "endless" and as essentially "continuous" in character:

The procedure followed included several steps.

First of all, he was oriented in relationship to subjective time values by asking him, at the expiration of a sharp pain, to fix his attention rigidly on the movement of the minute hand of a clock and to await the next sharp pain. The slightly more than seven minutes of waiting in anticipatory dread seemed hours long to the patient and it was with definite relief from his feeling of wretched expectation that he suffered the next sharp pain. Thus, anticipation and pain, as separate experiences, were differentiated for him. Also, he acquired in this way an understanding of time distortion,* particularly that aspect of time distortion related to the "lengthening" or "expansion" of subjective time experience.

Next, a careful explanation was given to him that freedom from the experience of pain could be accomplished in several ways — by anesthesia and by analgesia, both of which he understood, and by amnesia which he did not understand. The explanation was offered that, in amnesia for pain, one could e x p e r i e n c e pain throughout its duration, but would immediately forget it and thus would not look back upon the experience with a feeling of horror and distress, nor look forward to another similar pain experience with anticipatory dread and fear. In other words, each recurrent sharp pain could be and would become a totally unexpected and completely transient experience. Because it would be neither anticipated nor remembered, it would seem experientially to have no temporal duration. Hence, it would be experienced only as a momentary flash of sensation of such short duration that there would be no opportunity to recognize its character.

In this fashion, the patient was taught another aspect of time distortion, namely a "shortening," "contraction," or "condensation" of subjective time.

Thus, in addition to the possible hypnotic anesthesia, analgesia, or amnesia for the pains, there was also the hypnotic reduction of their subjective temporal duration, which, in itself, would serve to diminish greatly the pain experience for the patient.

When these matters had been made clear to him, he was urged most insistently to employ all of the mechanisms that had been suggested — alteration of body sensations, body disorientation, dissociation, anesthesia, a n a l g e s i a, amnesia and subjective time condensation. In this way, it was argued, he could quite conceivably free himself from pain more readily than by employing a single psychological process.

In addition, the suggestion was also offered emphatically that he employ sub-

*Cooper, L. F., and Erickson, M. H. TIME DISTORTION IN HYPNOSIS, Williams & Wilkins Co., 1954. (This book deals extensively with experimental and clinical aspects of alterations of subjective time perception.)

jective time expansion to lengthen experientially all periods of physical comfort, rest or freedom from pain.

By this variety of differently directed suggestions, repetitiously given and in different phrasings to insure adequate comprehension and acceptance, the patient's sharp recurring pains were abolished in large part insofar as observation of his objective behavior and his own subjective reports were concerned. However, it was noted that periodically he would lapse into a brief unresponsive stupor-like state of ten to fifty seconds' duration, an item of behavior suggestive of a massive obscuring reaction to pain. It was noted that these were less frequent and shorter in duration than the original sharp pains had been. It was also observed that the patient appeared to have no realization whatsoever of his p e r i o d i c lapses of awareness.

No systematic inquiry could be conducted into the actual efficacy of the suggestions. The patient simply reported that hypnosis had freed him almost completely of his pains, that he felt heavy, weak and dull physically, and that not over twice a day did any pain "break through". His general behavior with his family and friends validated his report.

Some weeks after the institution of hypnotic therapy, the patient lapsed suddenly into coma and died without recovering consciousness.

SUMMARY AND GENERAL COMMENTS

A presentation has been offered of the utilization of hypnosis in terminal painful disease. Three case reports, not entirely typical, have been presented in order to illustrate more adequately the actual possibilities of therapeutic benefits.

An effort has been made to describe the therapeutic methodologies employed, but this effort is not fully possible. Hypnotherapeutic benefits, especially in such cases as reported here, are markedly contingent upon a varied and repetitious presentation of ideas and understandings to insure an adequate acceptance and responsiveness by the patient. Also, the very nature of the situation precludes a determination of what elements in the therapeutic procedure are effective in the individual case.

These three case reports indicate definitely that hypnosis can be of value in treating terminal painful illness. However, it is not to be regarded as an absolute answer to all the medical problems involved. Rather, it is one of the possible approaches in the handling of the patient's problems that possesses special and highly significant values at both psychological and physiological levels.

While hypnosis can sometimes be used alone as a means of pain control in carcinomatous disease, more often it is properly used as an adjuvant. In that capacity it can serve to diminish significantly the actual drug dosage and to effect a much greater relief both mentally and physically. In all probability, the more comprehensive psychologically the hypnotic approach, the greater is the possibility of therapeutic results.

The Problem of Low Back Pain

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Pain in the low back, with or without radiation of pain into the lower extremities, is one of the most common of human maladies. In the past the cause of the low back syndrome was enunciated with such catch-all terms as: lumbago and sciatic. Today the profession uses such catch-all terms as lumbosacral strain and herniated nucleus pulposus. As a result of the generalizations offered as an explanation of the pain, the patient suffering from pain in the low back, with or without radiation of pain into the lower extremities, is probably one of the most over-treated, misdiagnosed patients treated by the orthopaedist, and particularly the neurosurgeon.

There are several reasons for the misdiagnosis: The orthopaedist is too pre-occupied with thoughts relative to the category of trauma and the neurosurgeon is too pre-occupied with thoughts relative to the categories of trauma and new growth; failure to spend sufficient time with the patient while obtaining the initial history and performing the initial examination; failure to appreciate or a lack of cognizance of some of the very excellent work that has been done to explain the etiology of back pain; misinterpretation of the facts gleaned from the initial history, physical examination, and x-rays. The doctor knows in advance that the vast majority of all complaints of the low back will clear spontaneously regardless of the treatment — consequently the apathy and foolhardy institution of dangerous diagnostic procedures even to the point of surgery.

Orthopaedics encompasses all fields of medicine —trauma is a very small subdivision of orthopaedics. However, trauma is by and large the main topic of presentation and conversation. The diagnosis of a traumatic lesion is for the most part simple and there are just so many ways a traumatic lesion can be resolved.

Articles are written time and time again ascribing low back pain, with or without radiation of pain into the legs, to twenty-five or forty etiologies. With no effort at all a hundred etiologies could be listed, and ninety percent could or should be ruled out during the initial visit.

A patient who presents himself for examination with a history of low back pain, with or without radiation of pain into the legs, should be considered a diagnostic puzzle—most of the pieces of which should be ascertained during the initial visit; and if a correct rather than a distorted picture is to be obtained, the pieces of the puzzle should be carefully appraised and carefully pieced together.

There are several salient reasons why the doctor does not find all the pieces to his puzzle; he fails to take a careful past history and review of systems as well as a careful present illness; he fails to do a complete examination — overlooking such organs as skin, brain, eyes, nose, throat, heart, lungs, liver, spleen, kidney, uterus, ovaries, and prostate — forgetting that the patient has a pituitary, thyroid, parathyroid, pancreas, adrenal, and gonadal gland; and most unfortunately he is hampered by terminology and by either a conscious or a subconscious obeisance to so-called diagnostic tests that masquerade with the compliance of and under the name of some famous man; he orders routine x-rays, failing to adjust the number and type of x-rays to satisfy his index of suspicion; he looks at x-rays and routine laboratory reports before he examines the patient, not knowing what he is looking for, and a slight abnormality visualized on the x-ray prior to examination of the patient automatically reduces the doctor's curiosity; he misinterprets the x-rays — it is so easy to rush back to the patient spouting hypertrophic arthritis and disc deterioration without giving due consideration to the facts that such observations are the result of the aging process and without consideration of the fact that grandmother and grandfather suffered from such an aging process and did well — "just got stove-up in the back for a few days"; he blindly accepts a previous diagnosis made by another physician. For example, a man presented himself, at the end of a year of treatment with the complaint of low back pain radiating into the

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lower extremities. He had been examined a year ago by a neurosurgeon. Myelographic studies were done and an operation performed. The fourth and fifth lumbar discs were removed. No record had been made as to the manner in which the patient was injured, no general physical examination done, no X-rays made of the myelographic examination, no material submitted for biopsy, yet there was a midline surgical incision of the low back. At the time of injury he had backed into a rafter, the point of force occurring in the dorsolumbar region. He had not fallen. His back had been neither flexed nor hyperextended. He demonstrated paravertebral muscle spasm of the low back, a positive straight-leg-raising test which was contralaterally positive. He had spotty areas of hypesthesia. Examination of the low back, by x-ray, revealed mild hypertrophic lipping, an old un-united fracture of the twelfth rib. There was moderate deterioration of all lumbar discs as evidenced by the lipping of the margins of the vertebrae and the concavity of the centra. There was no definite narrowing of any of the intervertebral spaces to suggest that discs had been removed a year previously. The Wassermann test performed on the spinal fluid was four plus, the colloidal gold curve was of the tabetic type; and in addition, there were all the salient findings of central nerous system syphilis. Another patient who had low back pain with radiation of pain into the left lower extremity — the pain aggravated by coughing and bending, and who had hypesthesia about the Achilles tendon, a positive straight-leg-raising test, and narrowing of the fourth and fifth lumbar intervertebral spaces had been under treatment for six months for a herniated nucleus pulposus. The diagnosis was nonspecific osteitis of the third and fourth sacral vertebrae. The diagnosis was made by open biopsy with subsequent relief of the spasm of the phriformis muscle and clearance of his back and leg pain. Another patient who was treated for a year for disc-like symptoms had metastatic adenocarcinoma of the left sacroiliac joint. Another patient treated for five months for a herniated disc died from wide spread metastatic carcinoma of the bladder. Another patient treated for three weeks for disc-like symptoms nearly died from acute disseminated encephalomelitis. Another patient treated for disc protrusion had acute gonorrhea; another had tuberculosis of the sacroiliac joint; another had posterior subluxation of the fifth lumbar vertebra on the first sacral vertebra; another had a stag horn calculus of the renal pelvis; another had prostatitis; another had wide spread clear cell carcinoma; another had Weaver's bottom. Yet just recently I heard a prominent orthopaedist make the statement that he could diagnose a disc protrusion by just seeing a patient walk and a neurosurgeon say that five minutes was all that was required of his time to arrive at the diagnosis of disc protrusion — such lucidness.

A patient with symptoms referable to the low back, unless he has just fallen out of a third story window, is a diagnostic challenge and not only needs but requires two or more hours of the doctor's time. Any doctor, regardless of his past or present accomplishments in the medical profession, who thinks he can routinely within five to ten minutes explain the origin of a chronic low back pain is thinking more in terms of causes than in terms of causation. There is no substitute for a careful history and complete physical examination.

A proper evaluation of the physical findings is paramount. A patient who has pain in the low back aggravated by coughing or bending has pain in the back. The coughing and bending are merely jarring painful structures. Pain radiating into the leg with coughing or straining merely means that a nerve irritated from whatever cause is being irritated additionally by the jarring or increased spinal fluid pressure. A positive straight-leg-raising test merely indicates an irritated nerve — irritated from whatever cause. The positive contralateral straight-leg-raising test, which is supposed to be pathognomonic of a disc protrusion, merely indicates that the intensity of the reaction is either of such an order that a nerve root is bound down in adhesions or that the opposite nerve root is also irritated. It is obvious that as one nerve root is pulled distally the opposite nerves must

slip proximally. Passively twisting and flexing of the hips with resultant back pain are in nowise diagnostic. The only information gained from such maneuvers is that painful structures in the back are being moved. Loss of reflexes and areas of hypesthesia can be caused by a multitude of disorders —herniated disc is too popular a term.

Myelographic studies are highly recommended and performed at will. It is said, however, that the procedure should be done by only the most expert of experts. First, I do not know that any particular skill is required to stick a needle into the subdural space and squirt in a little so-called innocuous dye. Second, the little squirt of innocuous dye is far from being innocuous. Third, I have to scratch my head hard to offer any real justification for that little squirt of dye. It appears to me that the little squirt of dye is by and large a substitute for a careful history and physical examination. To use this little squirt of dye to localize a disc protrusion merely indicates that the surgeon has little proficiency for exploring the nerve roots. Rarely a myelogram may be indicated in a diagnostic problem regarding new growths outside or inside the dura in the presence of such diseases as tabes and disseminated sclerosis. There is no substitute for a careful history and physical examination.

The treatment of low back pain, so far as the general practitioner, neurosurgeon, and orthopaedist is concerned, is simple — absolute bed rest and careful observation. If relief does not come rapidly within a few hours or days, one should apply his thinking cap and re-evaluate the pieces of his diagnostic problem. Additional laboratory tests and x-rays may be required. Surgery should be a last resort. The application of rigid back braces, except in cases of scoliosis in children, for periods over two or three months is deplorable. The brace, after it has served its immediate purpose, can do no more than weaken muscles, increase the lumbosacral angle, and make for a rigid and painful back.

There is no substitute for a careful history and complete physical examination. There is no substitute for watchful waiting. I am very much unimpressed by disc surgery in the lumbar region. First, surgery of any kind is not to be considered lightly. Second, I wonder where all the paralyzed people are who rupture their discs. Third, I wonder where all the invalids from disc protrusions are who ruptured their discs before Mixter and Barr made their description. Fourth, I am still looking for that patient with the massive herniation and complete residual paralysis, and I am still looking for that patient with a herniated disc who cannot be cured with rest and physical therapy. Fifth, I wonder how the compilers of the statistics referable to disc-surgery manage to sleep at night. Sixth, I wonder about disc surgery in the light of the ease of the operation, the surgeon's fee, and the short hospitalization. Seventh, I wonder why the neurosurgeon does not take care of the patients with the chronic low back pain — the patients who have been squirted with that little squirt of dye by the expert of experts and who have had their discs removed.

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Conference on Diseases of Bones and Joints*

THE SKELETON

The monthly Orthopaedic, Radiology and Pathology Conference* was held at the University Medical Center the evening of March 17, 1959 and was attended by doctors of these specialties from all over the city, as well as many of the residents in training at the University Hospital. Dr. Diner from the Radiology Service presented a series of malignant bone tumors which were then discussed by the group from the standpoint of their radiologic features, pathologic findings, and treatment. The following five representative cases were selected from this series as the ones thought to be of most interest to doctors throughout the state.

Case I.

M. F., a 12 year old colored male was asymptomatic until five months before admission when he noted a painful, acorn-sized lump on the anteromedial aspect of the upper third of the right tibia. The mass gradually grew until when seen in the clinic September 17, 1956, it was several inches in diameter. He had pain regardless of movement for the preceding three months and was unable to run and play for two months. Examination revealed a rounded, moderately firm, tender mass showing increase of temperature on the antero-medial side of the proximal third of the tibia. There was no limitation of knee motion, but the patient limped, favoring the right leg, and was unable to bear weight on the leg without considerable pain. There was considerable atrophy of the muscles of the thigh. X-ray revealed a bony lesion involving the proximal third of the tibia illustrating the sun-ray appearance frequently seen in osteogenic sarcoma, Figure 1. It also shows Codman's triangle due to elevation of the periosteum and formation of reactive bone. A mid-thigh amputation was performed 9-24-56 at the Arkansas Children's Hospital, and the diagnosis of osteogenic sarcoma confirmed by pathologic study. This patient was last examined two years later, at which time he was wearing a prosthesis, showed no evidence of recurrence, and chest x-ray was negative.

This patient showed the characteristic symptom of pain, insidious in onset and gradually becoming severe, deep, boring and constant. It also shows the characteristic location in the metaphyseal region. He has done very well following amputation. The prognosis in this type of tumor is generally poor, the five-year survival being somewhere in the neighborhood of five per cent. In this patient the amputation was done without preliminary biopsy, and the question may well be raised whether cutting into the tumor does not increase the risk of dissemination. A frozen section study at the time

*Presented at the monthly meeting of the Little Rock Orthopaedic, Radiology and Pathology Conference.

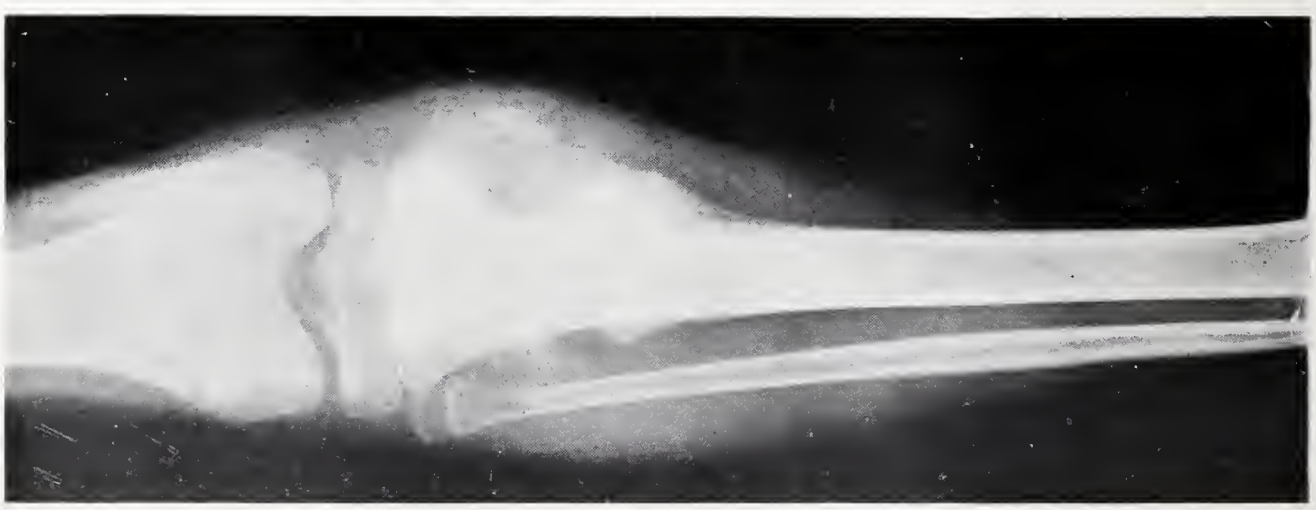


Fig. 1. Osteogenic Sarcoma: The upper shaft and metaphyseal area are involved in a densely sclerotic bony growth with flocculant periosteal new bone extending out into the soft tissues especially medially where a large soft tissue mass presents. In some areas this new bone formation has a radiating spicule arrangement. There is lamination of periosteal new bone at the lower margins with elevation of the lamination medially forming a characteristic Codman's triangle. The amorphous sclerosis within the bone extends across the epiphyseal line above and about half way down into the shaft below.

of operation, while less satisfactory than permanent sections, may still give the best results since amputation can then be performed above a tourniquet placed between the tumor and the amputation site. However, confirmation of malignancy should always be obtained prior to ablation.

Case II.

C. F. a 28 year old colored female was admitted to the hospital 7-21-58, giving a history of having fallen on her left knee at the age of twelve. Since that time she had noticed a large mass on the lateral aspect of the left leg. This mass was completely asymptomatic over this sixteen-year period until four months prior to admission, when, while pregnant, she noticed the mass had become larger and begun to hurt. About two months later she noticed a burning pain over the dorsum of the foot and lateral aspect of the ankle. She consulted her local doctor who diagnosed arthritis. When this persisted, however, she consulted another physician who referred her to the University Medical Center. Physical findings on admission, besides a four-months pregnancy, were confined to the left lower extremity where a firm, non-tender mass measuring 10 x 10 cm. was palpable in the lateral aspect of the leg just below the knee. There was no sensory or motor impairment. X-ray on admission is shown in Figure 2a. The treatment was local resection of the tumor mass with proximal half of the fibula. The pathologic diagnosis was osteogenic sarcoma, juxtacortical type, of the head of the fibula with invasion of the adjacent muscles. Wound healing was delayed by a Pseudomonas infection over a three-month period. She was again admitted 2-4-59, having had considerable pain in the leg since her previous surgery. At this time examination revealed multiple firm masses over the lateral tibial condyle and posterior to the lower end of the femur. X-ray revealed these masses to have bony density, Figure 2b.

Since the chest x-ray film revealed no evidence of pulmonary metastasis, her treatment on this admission consisted of amputation by disarticulation at the left hip. Following this the wound healed per primam.

The juxtacortical or periosteal sarcoma may be "a wolf in sheep's clothing." The slow growth and long history of a mass, as in this case, points to a benign nature and it has been shown to recur locally following repeated excision as many as six times without metastasis. On the other hand, some will recur highly malignant and metastasize early, as in this example. In retrospect, the sudden change to a painful and rapidly growing tumor four months prior to admission would indicate the need for amputation rather than local resection. In view of the recurrence, disarticulation was considered mandatory; however, in a matter of a few weeks following this procedure, multiple recurrences were observed in the pelvis, the opposite hip and the amputation site. These were considered too numerous to justify excision, and no further surgical treatment has been attempted.

Case III.

A. L., a 56 year old white male was admitted to the hospital two years ago with a two-year history of pain and weakness in the right hip, which spread to involve the entire lower extremity. This was most marked in the posterolateral aspect of the heel and dorsum of the foot. There was a history of eight pounds weight loss, muscular weakness and atrophy of the extremity. There was no pain or limitation of motion of the spine, tenderness was localized to an area 1-1½" above the right hip joint. Pain was present on hyperextension, external rotation and flexion of the hip, patellar and Achilles reflexes were absent on the right. X-ray revealed a destructive as well as sclerotic lesion of the right innominate bone with no evidence of additional bony lesions revealed by a bone survey, Figure 3a. Tissue removed by open biopsy revealed chondrosarcoma. The biopsy incision showed delayed healing over a period of four months, while he was followed as an out-patient. On August 24, 1956, pus was encountered on incision for hemipelvectomy, which was, therefore, deferred until September 14 when amputation was performed passing just lateral to the sacro-iliac joint, Figure 3b. The post-operative x-ray revealed what was thought to be tumor still present in the



Fig. 2. A. Parosteal Sarcoma: A densely sclerotic amorphous bony growth surrounds the proximal end of the fibula, the upper most portion of which cannot be seen through the tumor mass.

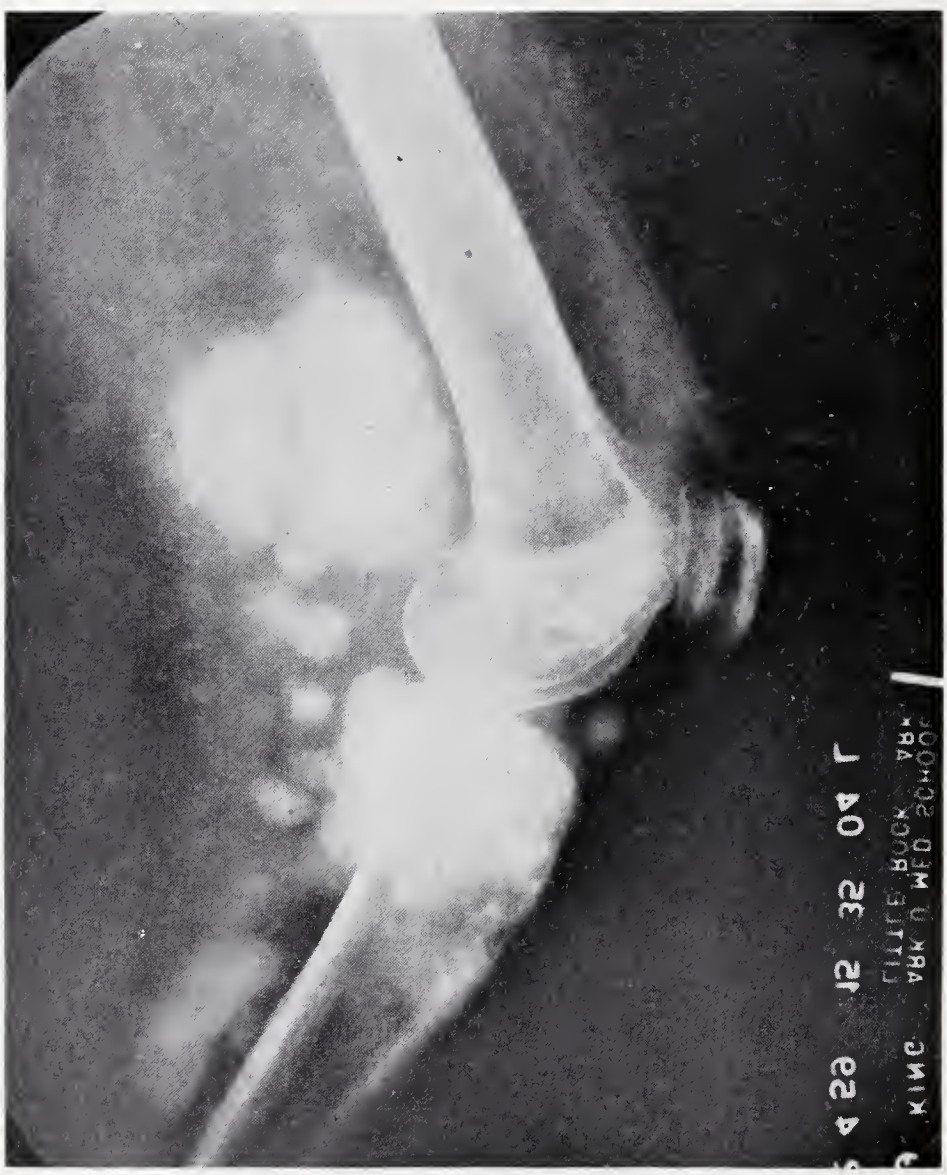


Fig. 2. B. Left knee: A lateral view taken nearly 5 months later shows clusters of amorphous calcifying and ossifying tumor masses in the area of the resected upper fibula and about the knee.

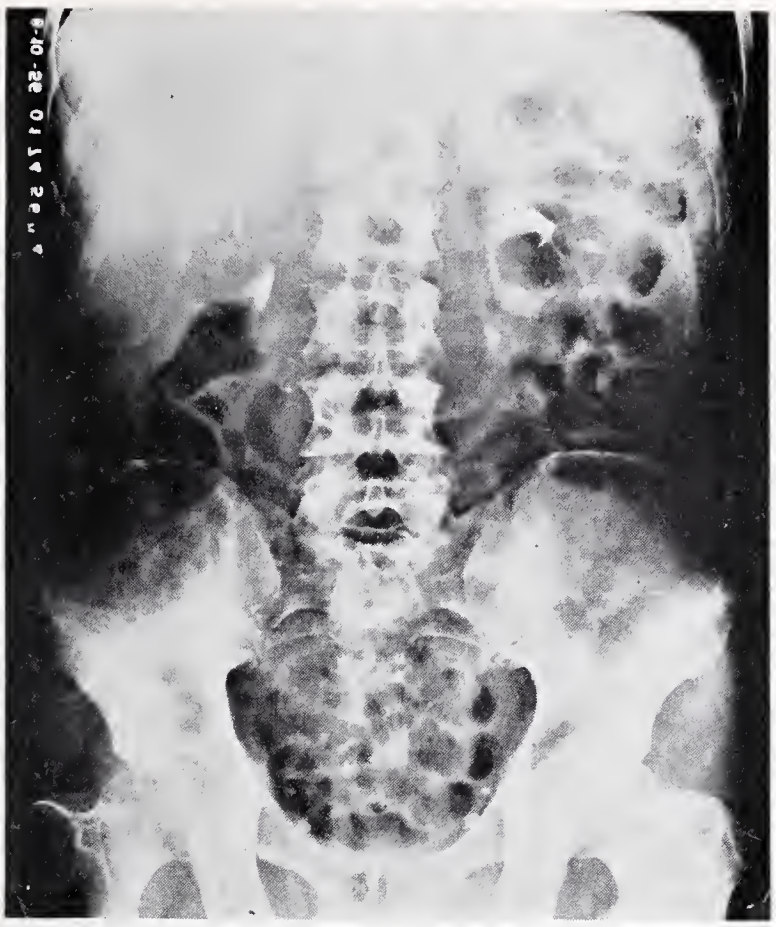


Fig. 3. A. Primary Chondrosarcoma: There are well defined irregular rounded areas of bone destruction in the lower ilium above and medial to the acetabulum. These areas are surrounded by dense amorphous sclerosis of the bone and there are several discrete clusters of calcification in the soft tissue lateral to the ilium.



Fig. 3. B. A post operative film shows a portion of the right ilium to have been left in place and the sclerotic bone represents obvious residual tumor.

retained portion of the ilium; therefore, the remaining portion was excised January 4, 1957, the wound healing per primam, Figure 3c. Six months later he was found to have what was considered a solitary pulmonary metastasis followed by pleural effusion, and two months later he was reported to have died at home.

This patient who was considered a primary type of chondrosarcoma illustrates the age incidence for the tumor ranging from the third to seventh decade with a peak at the sixth decade. Also, it is predominantly in males with a 2 to 1 ratio. The lesion appears most commonly in the pelvis and ribs, these making up about one-half of the total cases, but it is not uncommon also in the scapula. Although this lesion carries a high recurrence rate after local excision, the prognosis is good after adequate radical surgery with a five-year survival variously reported up to twenty-one per cent. The x-ray views in this patient are quite typical with areas of destruction and bone formation, also well-defined areas of bone formation in the soft tissue mass. In retrospect, an earlier surgical removal, completed in one procedure, might have improved the prognosis, although the procedure was delayed because of infection.

CASE IV.

O. H., a 43 year old white male was well until six months prior to his admission January 2, 1948. At that time he noticed a tender enlargement in the upper medial aspect of the right thigh which was firm and painful. Motion of the hip in all directions became painful and the mass gradually enlarged. Three months prior to admission the pain became constant; he consulted a local physician who made a roentgenogram and told him he had cancer of the bone. On admission, examination revealed a mass 15 x 25 cm. over the antero-medial aspect of the right femur at the upper third. A biopsy the next day revealed approximately 1000 cc. of greyish-red material of mucoid consistency in which were suspended numerous pieces of grey-black necrotic tissue. Pathologic study revealed gelatinous substance containing bizarre cartilage cells. A diagnosis of chondrosarcoma was made. This is thought to represent the secondary

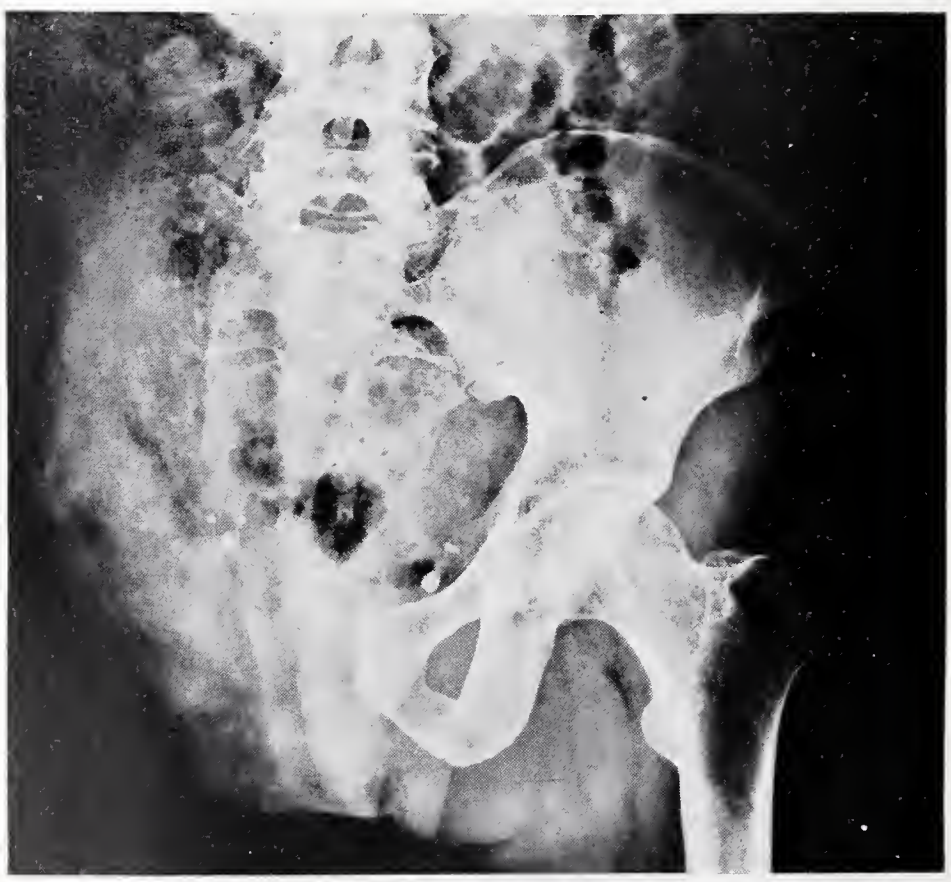


Fig. 3 C. A film taken after the second operation shows that this portion of the ilium and the sacral wing have now been removed.

type of chondrosarcoma arising in a previously existing osteochondroma since the x-ray shows a large soft tissue mass surrounding a bony prominence in the region just distal to the lesser trochanter which is suggestive of an osteochondroma with broad base, Figure 4a. Again there are mottled areas of bone destruction and flecks of bone in the soft tissue.

Disarticulation of the right hip was performed two weeks after admission. Patient was next seen as an out-patient five months later and there was no evidence of local recurrence or pulmonary metastases. However, when he was next seen, eleven months later, (sixteen months following amputation) he complained of thirteen pounds loss in weight, chronic cough with blood-tinged sputum and chest x-rays revealed multiple pulmonary metastases, Figure 4b.

The occurrence of malignant degeneration in osteochondromata is variously estimated from four to ten per cent. Osteochondromata should cease growing at the time patient obtains full growth, so any such masses which become larger or painful should be viewed with suspicion. This is again a tumor of adult life in contradistinction to the chondroblastic sarcoma, a highly malignant tumor with its peak of incidence in the second decade.

CASE V.

N. F., a 19 year old white female was first admitted to the University of Arkansas Medical Center August 30, 1957, complaining of weight loss and malaise. Over a four-year period she went from 165 to 91 pounds. For two years prior to admission she noticed generalized weakness, but was still able to do household duties and to chop cotton. Her physical examination was essentially negative except for cachexia, a bronze coloration of the skin and poorly developed secondary sex characters. She was found to have a marked anemia and serum alkaline phos-



Fig. 4. A. Chondrosarcoma (secondary type): An irregular sclerotic bony protrusion medially in the region of the lesser trochanter is presumed to represent an old osteochondroma. There are irregular radiolucencies within it and cortical sclerosis and thickening along the medial shaft below it. There is a tremendous soft tissue mass containing interspersed streaks and flecks of calcification forming a mottled reticular pattern.

photase of 53 Bodansky units. Addison's disease was ruled out on the basis of laboratory tests. X-ray revealed a lytic bony lesion in the left ilium, Figure 5. Biopsy of this lesion was performed 10-10-57 and pathologic study revealed the lesion to be reticulum cell sarcoma.

She was discharged from the hospital and readmitted three weeks later with the history of several black-out spells, which witnesses said were grand mal seizures. The area of the bone tumor was treated with deep x-ray therapy over a thirteen-day period, delivering a tumor dose of 1560 r through two opposing fields. The seizures were attributed to brain metastases. The patient was then lost to follow-up.

These tumors are somewhat less common than osteogenic and chondrosarcomas, having been reported to form approximately four per cent of malignant bone tumors. They may be found at any age, and more commonly in males. The x-ray appearance of this patient is quite characteristic with mottled patchy areas of bone destruction surrounded by bone density which blends off into the normal bone. When involving a long bone it is often very extensive and pathologic fractures are present in about one-fourth of the cases. The tumor responds well to x-ray therapy, giving from forty to fifty per cent five-year cures.

*This Conference is held on the third Tuesday of each month at the University of Arkansas Medical Center at 8:00 P.M. in Room B-114. Any doctors interested in conditions involving the musculo-skeletal system are welcome to attend.

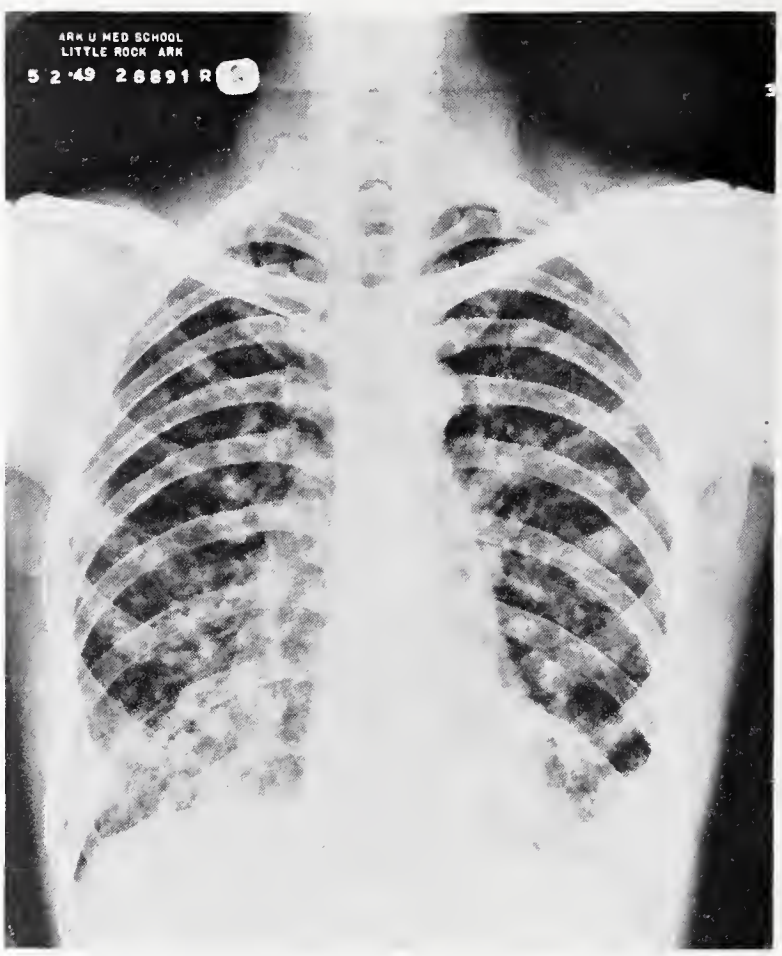


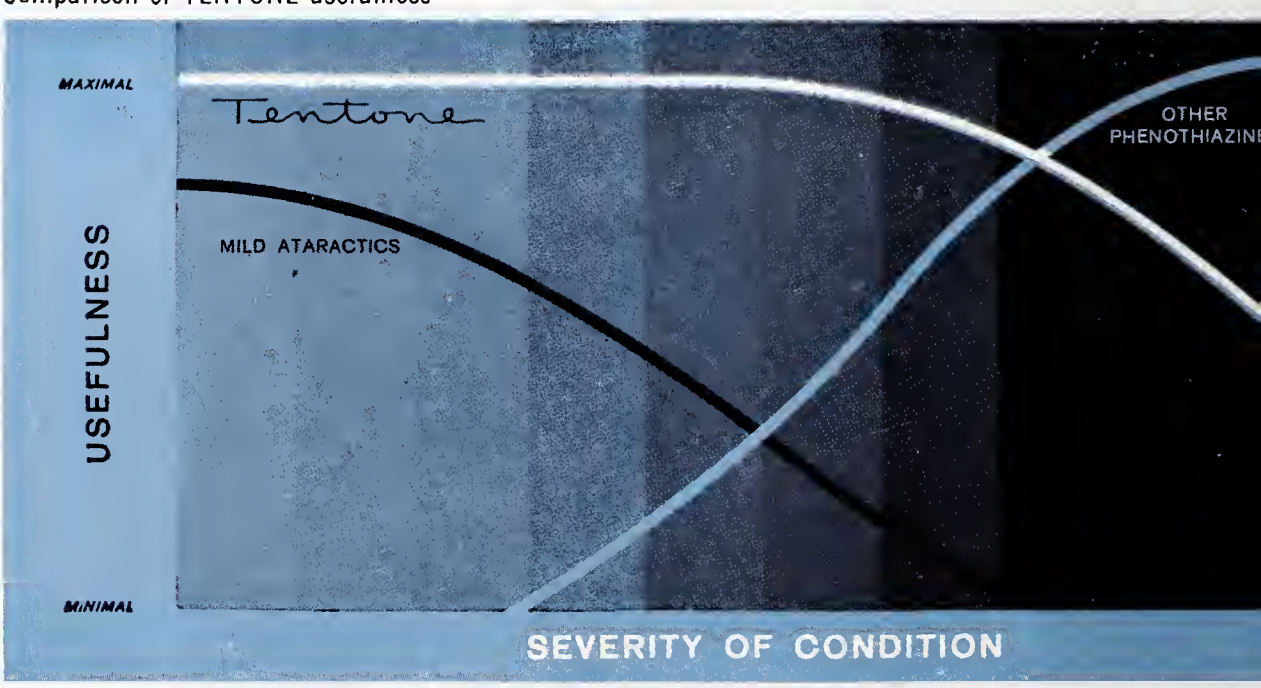
Fig. 4. B. The chest film 16 months later shows widespread metastases.



Fig. 5. Reticulum Cell Sarcoma: There is a large multi-loculated area of bone destruction in the lower portion of the ilium with an associated soft tissue mass laterally and a thin shell of elevated periosteal new bone along the mid pelvic wall.

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Some Unusual Manifestations of Bronchogenic Carcinoma

HAROLD R. HIPP, M.D.*

Carcinoma of the lung has become the most common carcinoma encountered in adult males. The manifestations of these lesions usually are related to the lungs, but occasionally patients with bronchogenic carcinoma present themselves with symptoms totally unrelated to the respiratory system and with minimal or no pulmonary symptomatology. The somewhat unusual symptomatology sometimes present is related to two properties of carcinoma of the lung. (1) The production of two rather bizarre clinical syndromes. (2) The tendency of these carcinomas to metastasize early and widely.

HYPERTROPHIC OSTEOARTHROPATHY

This entity is characterized by changes in the periosteum of the long bones demonstrated earliest, by x-ray, along the proximal and distal ends of the large bones of the extremities. The disease takes its name from the enlargement of the bones in the advanced stages, and, prior to Marie's[1] description in 1890, was misdiagnosed as acromegaly. The advanced stages of the disease are seldom seen today, and the usual x-ray picture now is one of an onion skin layer or a thin line of new bone formation in the sites mentioned above. Considerable confusion has been produced by the use of the term hypertrophic osteoarthropathy for clubbing of the fingers without the long bone changes. Clubbing almost always precedes the long bone changes, but the term hypertrophic osteoarthropathy should probably be reserved for those cases demonstrating changes in the long bones. Clubbing of the fingers is always painless. The long bone changes may be asymptomatic or may be accompanied by varying degrees of arthralgia. The pain is sometimes severe enough to require narcotics. Gynecomastia may be found in some cases.

In past years hypertrophic osteoarthropathy was most often seen in patients with long standing suppurative disease of the lungs, but today is seen most frequently in association with pulmonary neoplasm. With the advent of antibiotics and advances in chest surgery the clinical spectrum of pulmonary disease has changed. Cases of long standing pulmonary suppuration are now not commonly seen. In a review of 25 papers in the English literature since 1938, Hammarsten[2] found 79 cases of hypertrophic osteoarthropathy reported associated with pulmonary neoplasm and only 12 with other diseases. Bronchogenic carcinoma has been the neoplasm in most cases, but mesotheliomas, sarcomas and even metastatic malignancies have been the causative neoplasms in several reports.

Clubbing of the fingers without long bone changes is more common than the syndrome of hypertrophic osteoarthropathy. Although not diagnostic of bronchogenic carcinoma, clubbing, especially when marked, may be of some value in the differential diagnosis of a pulmonary lesion, since uncomplicated pulmonary tuberculosis rarely, if ever, is a cause of clubbing. Although it is uncommon to find definite clubbing where no cause can be found, such cases do exist, and it is always possible that this form of clubbing may coexist with any disease. Minor degrees of clubbing are difficult to define and attempts to draw conclusions where the clubbing is not definite are likely to lead to diagnostic errors.

Case I: This patient was a 59 year old white male first admitted to the Little

*Chief of the Medical Service, Veterans Administration Hospital, Little Rock, Arkansas.

Rock Veterans Administration Hospital 3/31/54, with a chief complaint of soreness and swelling of the knee and ankle joints of 6 months duration. There were no symptoms referable to the respiratory system. Except for an old myocardial infarction, the patient had been asymptomatic up to the onset of the joint symptoms. On physical examination there was marked clubbing of the fingers and toes. Both knee and ankle joints were tender and swollen, but maximum tenderness was along the femurs and tibias adjacent to the involved joints. Results of laboratory examinations were as follows: White blood count, 17,400 with 65 neutrophils, 26 lymphocytes and 4 monocytes. Hemoglobin was 14 grams. Sedimentation rate was 34 mm. Roentgenogram of the chest showed an abnormal density in the left lung which was thought to be more characteristic of an inflammatory lesion than of neoplasm. Films of both knees and ankles showed an irregular ossifying periostitis of the lower shafts of the femurs and the lower shafts of the tibias and fibulas. The patient was acutely uncomfortable in the hospital and required frequent narcotics for the bone and joint pains. On 5/3/54, an exploratory thoracotomy was performed and the left upper lobe resected. Microscopic examination of sections of the resected material showed an alveolar cell carcinoma. The patient was completely free of arthralgia within 24 hours following surgery, and had no recurrence of bone and joint pains even though the carcinoma subsequently recurred.

COMMENT: As in this case, the symptoms of hypertrophic pulmonary osteoarthropathy are usually relieved dramatically if the primary lesion can be resected, even though in many instances the carcinoma may recur. In the cases of hypertrophic pulmonary osteoarthropathy seen at the Little Rock Veterans Administration Hospital, several have had no symptoms related to the peripheral joints or long bones, even though definite roentgenographic changes of periosteal elevation have been seen. It should be emphasized that most cases of bronchogenic carcinoma have neither clubbing nor the full picture of pulmonary osteoarthropathy. There are now numerous reports (3) in the literature of pulmonary neoplasm masquerading for years as arthritis before the underlying nature of the disease process was recognized. The presence of clubbing of the fingers, whether or not associated with arthralgia should prompt an x-ray of the chest, and when what appears to be rheumatoid arthritis is associated with marked clubbing, the possibility of pulmonary neoplasm is immediately suggested.

CUSHING'S SYNDROME

A clinical picture very similar to that seen in Cushing's syndrome has now been reported several times in association with bronchogenic carcinoma. After the first few reports, it was thought this was merely a coincidental association of two diseases. However, the number of reports is increasing, and it is becoming apparent that in rare instances there is apparently some connection between the pulmonary neoplasm and the production of Cushing's syndrome. Most of the patients reported have had hypertension, diabetes and elevated urinary 17-hydroxycorticoids and 17-ketosteroids in those cases where these determinations have been made. The cell type in most of the reported cases has been that of the "oat cell" or undifferentiated variety. The metastatic pattern of the tumor has not been thought to be a factor since some of the reported cases have had no metastases. Some, but not all, have had adrenal metastases, and some of the cases have had hypertrophied adrenals where no metastasis was present in the glands.

CASE II: This patient was a 49 year old white male farmer admitted to the hospital 1/24/55, with a history of 2 episodes of sudden loss of consciousness within the 2 weeks prior to admission to the hospital. There was no prominent pulmonary symptomatology, although the patient had had a cough for many years, and 2 to 3 months before admission had brought up some red streaked sputum. Physical examination revealed neurological changes consisting of marked weakness of the left upper and lower extremities and cranial nerve signs which were thought to be compatible with an intracranial neoplasm on the right. Chest x-

ray revealed a soft tissue mass behind the left border of the heart in the base of the left lower lobe. Because of progression of the neurological symptoms and signs, a craniotomy was performed and a large neoplasm removed from the right parietotemporal region. The microscopic diagnosis of this lesion was metastatic adenocarcinoma. The patient responded well, remained ambulatory and was discharged from the hospital. On 5/8/55, the patient returned to the hospital with a history of swelling of the face and ankles of 2 weeks duration. Physical examination at this time revealed a blood pressure of 130/80. Examination of the chest produced findings consistent with the previously described neoplasm. There was a marked edema of the feet and ankles, and clubbing of the fingers and toes. A long bone x-ray series showed extensive ossifying periostitis, compatible with pulmonary osteoarthropathy, of the distal ends of both femurs, the distal ends of both tibias and fibulas, and the distal portions of both radiuses. Serum electrolytes, including sodium and potassium, remained within normal limits. A glucose tolerance test revealed the following results: fasting, 93 mgm.% ; 1 hour, 197 ; 2 hours, 192 ; 3 hours, 127 ; 4 hours, 97. Several determinations of the urinary excretion of 17-ketosteroids revealed levels as high as 96 mgm. per 24 hour specimen. The patient was placed on a low salt diet and digitalized. The edema tended to recur, however, and injections of mercurial diuretics were required to keep the patient edema free. The blood pressure remained within normal limits throughout the patient's hospital stay. Death occurred on 8/31/55. Autopsy revealed an adenocarcinoma of the lung with metastases to the right lung, liver, and regional lymph nodes. The heart weighed 400 grams but was otherwise uninvolved. The adrenal glands were free of metastases, but weighed 28 and 26 grams. On microscopic section there was very marked cortical hyperplasia of the adrenal glands with abundant lipoid material.

COMMENT: Although this patient did not present the full picture of Cushing's syndrome, there was striking evidence of adrenal cortical hyperfunction as manifested by the high levels of urinary 17-ketosteroids and the tendency to form edema, and also by the marked hyperplasia of the adrenals at autopsy. In addition, the patient demonstrated x-ray evidence of hypertrophic pulmonary osteoarthropathy which, in this instance, was asymptomatic. It is also significant that the patient came to the hospital with symptoms of a metastatic brain tumor rather than symptoms of his primary neoplasm.

MANIFESTATIONS DUE TO METASTATIC PATTERN

By virtue of their location, carcinomas of the lung may discharge tumor cells into the peripheral circulation, and hence, can easily produce widespread metastases. The most frequent sites of metastases are as follows: Regional lymph nodes, liver, adrenals, brain, bones, pancreas, kidney and heart. Signs and symptoms of lung malignancy are usually present before those of the metastases, but not always. For example, any hospital treating large numbers of patients with carcinoma of the lung will have several patients admitted with symptoms of a brain tumor. (See Case II.)

BONE: Metastases to bone are probably more common than usually listed since the ordinary autopsy does not reveal most metastases to bone. The bony metastases may present much difficulty in diagnosis since pain is frequently present before the characteristic lesions in the bones can be seen on x-ray. However, the type of pain produced by bony metastases often has a characteristic character, frequently being relatively constant and requiring narcotics for relief. In most instances a pulmonary lesion will be present on roentgenogram, but this is not invariable. Bone pain of undetermined etiology should prompt the physician to obtain a chest x-ray as well as x-rays of the area of the skeleton involved.

A rare manifestation of bony metastases is the appearance of a leukomoid picture due to infiltration of the bone marrow with tumor cells, usually of the undifferentiated type. These patients may have bleeding tendencies, low platelet

counts and many other features suggesting leukemia. The following case presented such a clinical picture.

CASE III: The patient was a 46 year old white male farmer who entered the hospital 9/24/56, with complaints of severe, unrelenting pain in the back and in both lower extremities of 10 days duration. He also gave a history of having intermittent hemoptysis for about 3 weeks prior to admission to the hospital. Physical examination revealed a chronically ill patient in rather severe pain, but there were no other physical findings of significance. Chest x-ray and subsequent planigrams demonstrated partial atelectasis of the left upper lobe with a mass displacing the lower portion of the trachea to the right. On admission the hemoglobin was 13.9 grams, white blood count, 20,000 with 30 neutrophils, 51 lymphocytes, 12 bands, 6 monocytes and 1 eosinophil. A subsequent blood count showed a white count of 38,000 with 34 neutrophils, 16 bands, 5 juveniles, 2 myelocytes, 42 lymphocytes and 1 eosinophil. There were 25 nucleated red blood cells per 100 white cells. The hemoglobin had dropped to 6 grams. Platelet count was 44,000 per cubic mm. Bleeding time was 2½ minutes, coagulation time 17 minutes with a poor clot retraction. A bone marrow examination revealed, in addition to the normal marrow elements, clumps of very primitive cells which are closely packed together. These cells were thought to be those of a metastatic carcinoma. The patient's hospital course was that of continued severe pain in the back and extremities requiring narcotics. He had numerous nose bleeds, frequent hemoptyses, several episodes of hematemesis, and required several blood transfusions. Death occurred 16 days after admission, or approximately 6 weeks after his first symptoms. Autopsy showed an anaplastic carcinoma of the upper lobe of the left lung with very wide spread metastases. The liver and spleen were extensively involved with the tumor. On the sections of bone marrow examined, the spaces were filled with metastatic tumor, and there was almost no hemopoietic tissue found in these sections.

HEART: Carcinoma of the lung and carcinoma of the breast are the two carcinomas which most frequently metastasize to the heart. In the case of lung malignancy, involvement of the heart may be by direct extension or by discrete metastases. As listed by Drouin (4), the most frequent manifestations of cardiac metastases are as follows: 1. Congestive failure. 2. Pericardial effusion or rarely, signs of constrictive pericarditis. 3. Various arrhythmias, usually premature auricular or ventricular contractions, but occasionally, auricular flutter or fibrillation. 4. Angina pectoris or myocardial infarction due to involvement of a coronary artery. This is a rare manifestation. 5. In a few cases tumor will be found growing into the left atrium through a pulmonary vein and at times may almost completely occlude the atrium.

In most instances where there is cardiac involvement, the lung malignancy will have been known to be present for some time. However, in some instances the cardiac symptomatology may predominate.

ASSOCIATION WITH LARYNGEAL CARCINOMA: The association of laryngeal and lung carcinomas should be mentioned. In a review of this subject, Lewis and Schaff (5) have noted the frequency of the occurrence of bronchogenic carcinoma in patients who have had therapy for a laryngeal carcinoma. These authors also noted that in the reported cases, the laryngeal carcinoma always preceded or occurred simultaneously with the lung malignancy and never followed it. A solitary lung lesion in a patient who has had a carcinoma of the larynx should always be considered to be, until proved otherwise, a primary lung malignancy and not a metastasis. These authors also recommended that all patients who have had carcinoma of the larynx be followed closely with frequent chest x-rays for the appearance of a lung lesion.

SUMMARY

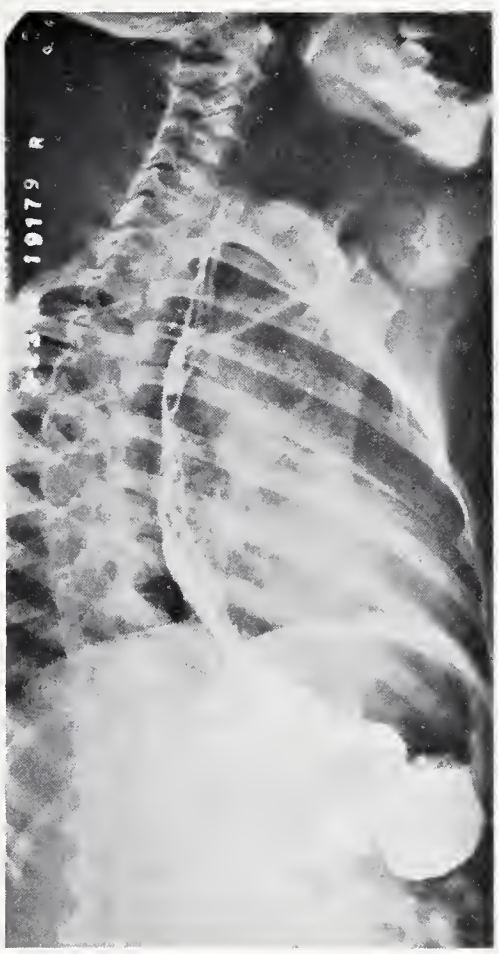
Some relatively unusual manifestations of bronchogenic carcinoma have been discussed, and the possibility of patients developing these manifestations at a time when the pulmonary lesion is asympto-

matic has been emphasized. Bronchogenic carcinoma is a very "versatile" neoplasm and is capable of producing very bizarre clinical pictures.

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What Is Your Diagnosis?



FOR ANSWER SEE PAGE 97

Arkansas Public Health at a Glance
Selected Causes of Childhood Mortality (0-19 yrs.) Arkansas 1955-1957

The causes of death under 20 years of age which are listed below were selected because they are for the most part preventable. Some are more readily prevented than others. A few categories such as "gastrointestinal disease", and "other infections of the central nervous system" are made up in part of conditions that are at present non-preventable. On the whole, however, medical science and public health practice now have effective tools to prevent or to effectively cure the specific conditions noted below.

It is worthwhile to review this mortality data and to note the relative importance of the various causes of death in this age group. Accidents are by far the major preventable cause of mortality in children 1 to 19 years of age, and a significant cause of death under 1 year of age. It should be noted that while accidents are theoretically preventable the specific ways and means to avoid accidents have not been worked out completely. Current studies of the epidemiology of accidents, such as the study on fires now being conducted in Mississippi County, should help answer some questions on why accidents occur and how to avoid them. Certainly cultural, social, and economic patterns are important factors in accidents.

Communicable diseases continue to be significant factors in childhood mortality, even though effective preventive and modifying immunization procedures are available for many of these diseases. Measles, poliomyelitis, and whooping cough have each caused somewhat more deaths than tuberculosis in the period 1955-1957 for the age range 0-19 years. These deaths along with the deaths due to tetanus and diphtheria are evidence that, while there has been great progress in Arkansas in Communicable Disease Control, continued vigilance in providing immunizations is indicated.

Deaths due to erythroblastosis are to a degree preventable. The neonatal death rate due to erythroblastosis was 0.5 deaths per 1,000 live births in 1957. In 1955, this rate for the U.S. as a whole was 0.6 per 1,000 live births. Although the rate of reported erythroblastosis deaths in Arkansas is not high compared to the U.S. as a whole, the number is still high for a potentially preventable cause. Also, when such causes of neonatal death as "ideopathic anemia", "congenital hemolytic anemia", "icterus neonatorum", and "jaundice, etiology undetermined" are found in reviewing neonatal death certificates, it is probable that there is an underreporting of erythroblastosis deaths in Arkansas.

From the data below, an estimate can be made of the relative importance of preventable causes of childhood mortality in Arkansas. The extent to which death is occurring from preventable causes is a rough measure of the need for wider application of available medical knowledge.

SOURCES: Arkansas Bureau of Vital Statistics, *Prenatal, Infant, Childhood and Maternal Mortality*, 1958 U.S. Dept. Health, Education and Welfare, Childrens Bureau.

Selected Causes of Childhood Mortality
Arkansas—1955-1957

Cause	1955		1956		1957	
	Age 0-1	Age 1-19	Age 0-1	Age 1-19	Age 0-1	Age 1-19
Accidents	58	275	64	294	52	261
Pneumonia and Influenza	172	52	142	31	163	99
Gastrointestinal Disease	67	15	74	14	57	10
Tuberculosis	0	8	2	3	0	6
Poliomyelitis	0	9	1	7	1	3
Measles	3	1	4	10	2	3
Meningococcal Infection	1	3	3	5	1	4
Whooping Cough	17	4	3	5	2	2
Infections of CNS other than TB and Meningococcal	10	7	12	11	6	10
Appendicitis	0	2	0	2	0	4
Diphtheria	0	0	1	0	0	4
Tetanus	2	0	1	0	2	2
Rheumatic Fever	0	6	0	7	0	4
Erythroblastosis	30	0	10	0	24	0
Other	766	166	726	173	740	182
Totals	1126	548	1043	562	1050	594

Editorial

Inborn Diseases

Alfred Kahn, Jr., M.D.

The role of heredity in diseases is being actively studied again. McKusich (American Journal of Medicine, Vol. 22, p. 676, 1957) has recently introduced a Symposium on Inborn Errors by discussing some of the mechanisms of genetic disease. Considered in this Symposium by other authors are such subjects as phenylketonuria, galactosemia, familial cretinism, hemolytic anemias, hypophosphatasia, Wilson's Disease, cystinuria, and porphyria. Manifestly, these are not common diseases, and yet their study leads to the better understanding of many biochemical puzzles that appear in non-genetic diseases and conditions.

Another facet of inborn disease in the broadest sense of the word has been the study of chromosome pattern in testicular disease. Examination of the nuclei of many cells of man discloses that there is a distinctive chromosome pattern for males and females. Recent investigations by Grumbach, Blanc and Engle (Journal of Clinical Endocrinology and Metabolism, Vol. 17, p. 703, 1957) of 65 males with testicular disorders led to the discovery that nine of these patients had a female chromatin pattern; all of these patients presented sterility, atrophic testes, or the Klinefelter Syndrome. Microscopic examination of the testis showed germinal aplasia or tubular fibrosis. Obviously, there are many ramifications of Barr's important discovery of a distinctive chromatin pattern for each sex.

This problem is important in the field of pediatrics as well as in the practice of adult medicine. Childs and Sidbury (Pediatrics, Vol. 20, p. 177, 1957) have splendidly reviewed genetics as it applies to medicine. This comprises a supplement to the regular journal and is highly recommended to all physicians, not just pediatricians. These authors point out that the genetic material which controls our ultimate physical and chemical makeup seems to reside in the chromatin material of the nuclei of cells. This is made up of desoxyribonucleic acid (DNA), which seems to have the physical appearance of ribbon wrapped around a longitudinal axis; the ribbon is made up of many smaller molecules which can take a variety of positions and may vary in their chemical composition. This affords a coded message, which it transmits to ribose nucleic acid (RNA), a component of nuclei and mitochondria. RNA forms new protein molecules in accordance with the coded message from DNA. These new proteins effect changes in the body probably via their antigenic and enzymatic properties. Childs and Sidbury, in addition, discuss the gene theory; they also review diseases due to heterozygous states as Marfan's Syndrome, rare genes in homozygous state as galactosemia, diseases due to genes of intermediate dominance as the abnormal hemoglobins, and sex-linked genes as pitressin resistant diabetes insipidus. There is also a good discussion of the relationship of disease to the frequency of genes.

Surprisingly, many diseases that are not ordinarily thought of as hereditary can be shown by examination of the family pedigree to be familiar. For example, it is not widely known that chronic relapsing pancreatitis can be recurrent within one family. Gross and Comfort (Proceedings of the Staff Meetings of the Mayo Clinic, Vol. 32, p. 354, 1957) have recently reported three families with this affliction.

Zeman (Journal of Chronic Diseases, Vol. 2, page 11, 1955) has reviewed genetic factors in diseases of later life. This is a general survey catalogued by the principle systems of the body. His discussions include such familial diseases as hypercholesterolemia, gout, arachnodactly, hemorrhagic telangiectasia, cystic disease of the kidneys, hemolytic anemia, allergies, muscular dystrophy, Peutz Jeghus Syndrome of Melanotic spots on the lips and intestinal polyposis, etc.

The relationship of diseases to genetics is an interesting, challenging problem that has led to many important medical discoveries, and doubtless will lead to a better understanding of the biochemistry of disease.

Medicine in the News

The House of Delegates of the Arkansas Medical Society, at a closed meeting in Ft. Smith on April 15, 1959, approved a proposal by Dr. James M. Kolb of Clarksville, new president of the Society, that a medical education foundation be established for the State of Arkansas. The foundation will be incorporated and a board of trustees elected. The foundation will receive donations of money and property, and disburse earnings from such gifts to individuals, firms, and others working in medical education and research.

Soviet Public Health

An "almost explosive extension" of disease prevention and medical care has taken place in the Soviet Union but the quality of service falls short of that found in the United States, according to a report released recently by the U. S. Public Health Service.

Members of the Mission travelled 8,500 miles and visited 61 institutions in 9 cities in 5 of the Soviet Republics during the period between August 13 and September 14, 1957.

They found that the problem of medical care in the Soviet Union has been "tackled with great vigor." There is a high ratio of physicians, and many hospitals have been built to serve the cities and rural areas. However, the U. S. doctors found that the Soviet Government has deliberately focused on quantity and widespread coverage of personnel and services, at the expense of quality.

The report states that Soviet medical establishments are "antiquated or jerry-built" in contrast to those in the United States. It is pointed out, however, that there are "certain ingredients in their political system and in their ability to accomplish mass transfer of brain and brawn from one field of endeavor to another which could permit astonishingly rapid change-over and developments in medicine as impressive as the appearance of Sputnik."

Pestilential diseases and the diseases of filth have been substantially brought under control. Malaria as a significant health problem is on the way to eradication. Venereal disease has been mastered but tuberculosis remains a plague.

The 5-man Mission consisted of Dr. Thomas Parran, Chairman, former Surgeon General of the U. S. Public Health Service (1936-1948), now President and Trustee of the Avalon Foundation, New York, New York; Dr. Otis L. Anderson, Assistant Surgeon General for Personnel and Training, Public Health Service; Dr. Henry van Zile Hyde, Assistant to the Surgeon General for International Health, Public Health Service; Dr. Malcolm Merrill, California State Director of Public Health; and Dr. Leonid S. Snegireff, Associate Professor of Cancer Control, Harvard School of Public Health.

The Mission's objective was to study prevailing public health problems and practices at close range.

Types of institutions visited in the Soviet Union included administrative public health headquarters, industrial health services, medical teaching institutes, "medium-medical schools," medical research institutes, local public health facilities, sanitary-epidemiological stations, urban and rural health centers, child nurseries ("creches"), rest homes, city markets, industrial plants, collective farms, and a member of other special medical facilities and institutions.

Medical Research Funds

Washington, D. C. — Congress won the first round in a battle over medical research funds, but the Eisenhower Administration is in a strategic position for the final outcome.

The House voted $344,279,000 for the National Institutes of Health, $50 million more than the Administration asked for in the fiscal 1960 budget. The move to increase medical research funds also had strong support in the Senate.

However, the Health, Education and Welfare Department and the Budget Bureau will have the final say on how much of the appropriated funds are spent during the 1960 fiscal year when the Administration is striving to balance the budget.

Arthur S. Flemming, Secretary of Health, Education and Welfare, vigorously denied a charge of the Democratic-controlled House Appropriations Committee that the Administration had "gone so far as to set back the medical research program . . . in a desperate attempt to present, on paper, a balanced budget." Flemming said the committee was trying to give a "clearly misleading" impression. He also said it was hard to see how the Administration's $294 million program could be regarded as a backward step.

Flemming pointed out that the Administration request was for the same amount voted by Congress last year. And, he added, some of last year's appropriation will not be spent this fiscal year.

At the same time, U. S. Surgeon General Leroy E. Burney testified before a Senate Appropriations Subcommittee that there was a shortage of trained personnel in all fields related to human health, including medical research.

Rep. Francis E. Dorn (R., N. Y.) again has introduced a bill that would provide for a special commission making a study of the supply of physicians. In a letter put in the Congressional Record, Dr. F. J. L. Blasingame, Executive Vice President of the American Medical Association, envisaged an adequate supply on a long-range basis. He said: "Over the long haul, the increase in medical students is much greater proportionately than is the increase in the population . . . The future, I believe, looks bright."

Govt. Sponsors Cerebral Palsy Study

A government-sponsored, six-year study of the causes of cerebral palsy, mental retardation and kindred defects in children has gotten underway in 16 private hospitals and universities.

The study involves no experimentation, only observation. About 40,000 women will be kept under close check from the second or third month of pregnancy through childbirth. Observation of their children will be maintained through six years of age.

Russia Blamed for Radioactive Fall-out

U. S. scientists have blamed Russia for most of the radioactive fall-out thrust into the atmosphere in the last two years. But testimony before a Joint Congressional Committee on Atomic Energy estimated that overall the United States and Great Britain had created nearly three times as much radioactive debris by testing nuclear weapons as the Soviet Union had.

Russian tests were described as "extremely dirty" as to radioactive debris. However, the Russians have not exploded as many test weapons and devices as the Western Powers have.

The scientists differed on the degree of danger to humans posed by the radioactive fall-out. John A. McCone, Chairman of the Atomic Energy Commission, said that up to now the fall-out hazard has been "very small" and not serious when compared with common hazards, including natural radiation. But he warned against a "very serious hazard" in the future if nuclear tests are not restricted by international agreement.

The Walter Reed U. S. Army General Hospital 50th Anniversary

The Walter Reed U. S. Army General Hospital in Northwest Washington quietly marked its fiftieth anniversary recently. Its 448,000 patients since it was founded in 1909 have included presidents, congressmen, cabinet members and other notables. President Eisenhower underwent an ileitis operation there in 1956. Gen. John J. Pershing died there in 1948 after being a patient for seven years. The two most distinguished patients recently: former Secretaries of State John Foster Dulles and George C. Marshall.

ANNOUNCEMENTS

American Urological Association, Inc. Award

The American Urological Association offers an annual award of $1,000 (first prize of $500, second prize $300, and third prize $200) for essays on the result of some clinical or laboratory research in Urology. Competition is limited to Urologists who have been graduated not more than ten

years, and to hospital internes and residents doing research work in Urology.

The first prize essay will appear on the program of the forth-coming meeting of the American Urological Association, to be held at the Palmer House, Chicago, Illinois, May 16-19, 1960.

For full particulars write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before December 1, 1959.

Arkansas Rural Health Conference—July 30 and 31, 1959

Hotel Marion, Little Rock, Arkansas

PROGRAM

Thursday, July 30, 1959

11 A.M. to 2 P.M.—Registration

2 P.M.—Opening Session. Presiding: Ben N. Saltzman, M.D., Mountain Home, Arkansas. Chairman, Committee on Rural Health, Arkansas Medical Society.

2 P.M.—Community Singing, Karl Munson, Community Activities Specialist, Agricultural Extension Service, University of Arkansas

2:05 P.M.—Invocation. Dr. T. B. Hay, Pastor, Pulaski Heights Presbyterian Church, Little Rock, President, Arkansas Council of Churches

2:10 P.M.—Greetings. Charles R. Henry, M.D., Little Rock, Arkansas, Council on Rural Health, American Medical Association

2:20 P.M.—"The Golden Years," Hon. Orval E. Faubus, Governor of the State of Arkansas

2:40 P.M.—"Who Will Harvest My Wheat," Aubrey D. Gates, Director, Division of Field Services, American Medical Association

3:00 P.M.—Milk Break

3:10 P.M.—"The Age of Opportunity," Dr. Wilma Donahue, Chairman, Division of Gerontology, University of Michigan, Ann Arbor, Michigan

3:40 P.M.—Discussion

Discussion Leader: Oliver E. Eble, Executive Secretary, Kansas Medical Society, Topeka, Kansas

Consultants: Dr. Clark Tibbits, Assistant Director, Special Staff on Aging, U.S. Department, Health, Education and Welfare, Washington, D.C.
F. S. Crockett, M.D., Lafayette, Indiana, Chairman, Council on Rural Health, American Medical Association

4:40 P.M.—Recess

Thursday, July 30, 1959
Ballroom—Marion Hotel

6:30 P.M.—Dutch Treat Dinner
Presiding: Ben N. Saltzman, M.D., Chairman, Committee on Rural Health, Arkansas Medical Society
Invocation: Dr. T. B. Hay, Pastor, Pulaski Heights Presbyterian Church, Little Rock
Greetings: James M. Kolb, M.D., Clarksville, Arkansas, President, Arkansas Medical Society

"The New Era of Aging," Leonard Larson, M. D. Bismarck, North Dakota, Chairman of the Board of Trustees, American Medical Association

Introduction by R. B. Robins, M.D., Camden, Arkansas, member, Board of Trustees, American Medical Association

Friday, July 31, 1959
Ballroom—Marion Hotel

Presiding: Waldo Frasier, Executive Vice President, Arkansas Farm Bureau Federation, Little Rock, Arkansas

8:45 P.M.—Community Singing. Karl Munson, Community Activities Specialist, Agricultural Extension Service, University of Arkansas

9:00 A.M. — "S.C.A.T." Henry E. Spitzberg, Chairman, Division on Aging, Health and Welfare Planning Council, Pulaski County, Arkansas

9:20 A. M.—"Nursing Homes in Arkansas," Eugene C. Spratt, Little Rock, Director, Division of Hospitals, Arkansas State Board of Health

"The Nursing Home's Responsibility in Health Care," William Beaumont, Little Rock, Director, Region No. 7, American Nursing Home Association

"Arkansas' Million Dollar Home for Senior

Citizens, Sparks Manor," Marvin Altman. Administrator, Sparks Memorial Hospital and Sparks Manor, Fort Smith, Arkansas

10:00 A.M.—Milk Break

10:10 A.M.—"The Senior Citizen Council," L. E. Drewery, M.D., Camden, Arkansas, Chairman, Committee on Aging, Arkansas Medical Society

10:30 A.M.—Discussion

11:15 A.M.—"Community Improvement," Austin Vines, Director, Agricultural Extension Service, University of Arkansas

11:30 A.M.—"Going My Way," Mrs. Charles W. Sewell, Otterbein, Indiana, Advisory Committee, Rural Health Council, American Medical Association

Union County Seminar on Trauma

The Union County Medical Society is giving its annual **Seminar on Trauma** from 9:00 a.m. to 4:00 p.m. on Sunday, July 26, 1959. The program will be given by a group of surgeons under the direction of Dr. Carl Moyer from Washington University, St. Louis, Missouri. The American Academy of General Practice will give credit to its members who attend this meeting. A flying physician's breakfast will be held the morning of the meeting. For further information contact Dr. Berry L. Moore, Jr. of El Dorado, Arkansas.

Obituary

Dr. Don Smith, aged 88, of Hope, Arkansas, died April 22, 1959 in a Little Rock hospital after an illness of several months. Dr. Smith was born in Wheeling Springs, Arkansas. He was a graduate of Ouachita College and the University of Tennessee School of Medicine. He had been a practicing physician for 52 years, having practiced for five years in Gurdon and then forty-seven years in Hope, retiring in 1956. Dr. Smith was a member of the First Baptist Church at Hope, the Hempstead County Medical Society and the Arkansas Medical Society.

Survivors include his wife; three daughters, Mrs. B. B. McPherson and Mrs. W. E. Brasher of Hope, and Mrs. R. C. Ellen, Jr., of Monroe, Louisiana; one son, Willis G. Smith of Little Rock; seven grandchildren, and three great-grandchildren.

Dr. Austin Ross Hederick, aged 92, died April 27, 1959 in Newport, Arkansas. Dr. Hederick was born in Pikeville, Tennessee, and later moved with his family to Coal Hill, Arkansas, where he stud-

Resolution

WHEREAS, an all wise Providence has seen fit to remove from our midst, Dr. Holman B. Thompson, who was a valued co-worker and a faithful member of the Sebastian County Medical Society, Arkansas Medical Society and the American Medical Association since November 13, 1919, we the members of the society mourn and deeply regret his departure.

WHEREAS, as a physician in his chosen field of General Practitioner, he attained a great measure of distinction and won the respect of his colleagues as well as the gratitude and love of a host of friends and sorrowing people.

Therefore, BE IT RESOLVED, that the Sebastian County Medical Society express to his family the esteem in which he was held a member and its heartfelt sympathy to the family at the untimely loss that they have sustained; that a copy of this resolution be made a matter of record in the minutes of this meeting; that a copy be sent to the family and a copy to the Journal of the Arkansas Medical Society.

This resolution is respectfully submitted to the members of the Sebastian County Medical Society this the 7th day of April, 1959.

Davis W. Goldstein, M. D.
Committee on Resolutions.

ied medicine under the tutorship of his step-father, Dr. Lowe. He was graduated from the University of Tennessee School of Medicine in 1902. That same year he began his practice in Booneville, Arkansas, and practiced there until his retirement about four years ago. He was honored in Booneville in 1957 with a "Dr. Hederick Day" celebration. Dr. Hederick was a Mason, a member of the Methodist Church, the Rotary Club, the Arkansas Medical Society and the American Medical Association. He served as president of the Booneville School Board from 1919 until December, 1958.

Dr. Hederick is survived by his wife; a son, Col. Roger Hederick of the U. S. Air Force; a daughter, Mrs. Gene Stanfield of Little Rock; two grandchildren and three great-grandchildren.

Dr. James Newbill, 45, of Little Rock died May 10, 1959 in a Little Rock hospital. Dr. Newbill was a practitioner in anesthesiology. He attended Hendrix College and was graduated from the University of Arkansas School of Medicine in 1941. He was a member of the Arkansas Medical Society, the Pulaski County Medical Society, the American Society of Anesthesiology, and served as the second president of the Arkansas Society of Anesthesia. Dr. Newbill was a member of Trinity Episcopal Cathedral.

Survivors include his widow, Mrs. Blanche Brooks Newbill; a son, James Brooks Newbill of Little Rock; his mother, Mrs. George Burns Newbill; and a brother, George Burns Newbill of Benton.

Dr. Thomas Wilson, aged 73, died May 6, 1959 at his home in Wynne, Arkansas. Dr. Wilson, a native of Amite County, Mississippi, had practiced at Wynne since 1919. He was a graduate of the University of Tennessee School of Medicine. He was instrumental in establishing the Cross County Hospital, and was the first chief of staff of the institution. Dr. Wilson was an elder in the 1st Presbyterian Church of Wynne, a charter member of the Wynne Rotary Club, a Scottish Rite Mason, and a member of the Cross County Medical Society, Arkansas Medical Society, Southern Medical Society, and the American Medical Association, Association of Railway Surgeons, and the American Academy of General Practitioners. He had served as vice president of the Arkansas Medical Society, and was president of the Arkansas State Board of Health for four years.

Dr. Wilson is survived by his widow, Mrs. Elizabeth Barton Wilson; a daughter, Mrs. H. M. Sappington of Lancaster, California; two brothers, Dan M. Wilson of McComb, Mississippi, and John T. Wilson of Liberty, Mississippi; one sister, Mrs. R. A. Tarver of Liberty, Mississippi; and one grandson.

Dr. Oscar L. Bone, 74, Newark, Arkansas, died of a heart attack on May 18, 1959 at a Batesville hospital. Dr. Bone was Newark's only physician. He was born at Willow Springs, Missouri, and received his medical degree from the University of Tennessee School of Medicine. He began his practice in 1908 at Cushman, Arkansas, and moved to Newark in 1919. Dr. Bone was a member of the Independence County Medical Society, the Arkansas Medical Society, and the Hazel Edwards Memorial Methodist Church at Newark, having been a Board member for forty years.

Survivors include his wife, Mrs. Ethel Defreece Bone; a step-daughter, Miss Sandra Defreece of Little Rock; two brothers, J. W. Bone of Cotter and John Bone of San Dimas, California; and six sisters, Mrs. Ann Dickson and Miss Faye Bone of Fort Worth, Texas; Mrs. L. D. Eskew of Jonesboro; Mrs. Walter Johnston of Bentonville; Mrs. Charles Hull of Decatur, Texas; and Mrs. R. M. Smith of Hillsboro, Oregon.

Dr. John Forest Gulledge, aged 94, died at his home in Siloam Springs on May 16, 1959. Dr. Gulledge was born in Buchanan, Tennessee, and received his medical education from the University of Louisville Medical School. He began his practice in Cincinnati, Arkansas, in 1889, and moved to Siloam Springs in 1909, where he practiced until his retirement in 1952. Dr. Gulledge was a member of the Benton County Medical Society, the Arkansas Medical Society, the

American Medical Association, the Independent Order of Odd Fellows, and was a Mason.

Survivors are his wife; three sons, John Gulledge of Glencoe, Illinois, Joseph C. Gulledge of Sallisaw, Oklahoma, and Robert A. Gulledge of Tulsa, Oklahoma; three grandchildren, and five great-grandchildren.

PERSONALS AND NEWS ITEMS

Dr. C. F. Peters and **Dr. Russell W. Cobb** recently announced the opening of their new offices at 1420 Potts Street in Malvern, Arkansas.

Dr. and Mrs. C. G. Hinkle of Batesville left for New York City in early May to embark on a Mediterranean cruise. Ports of call for the cruise were the Island of Madeira; Rome, Naples and Venice, Italy; cities in Yugoslavia, and then to Southampton, England. They spent five days in London, and returned home on the Queen Elizabeth the last of June.

Dr. Harvey C. Riley, still in active practice at Bayou Meto at the age of 81 years, was honored on April 26, 1959, by friends and former patients at a meeting in the Bayou Meto Methodist Church. Dr. Riley was showered with gifts which included a reclining chair.

Dr. L. B. Jones of Helena, director of the Phillips County Health Unit, was elevated to the presidency of the Arkansas Public Health Association during the group's 11th annual session in Little Rock in April.

The Wilson Clinic in Magnolia has announced the association of **Dr. Jack T. Walker** for the practice of obstetrics, medicine, and surgery. Dr. Walker was previously associated with Drs. Hollenberg and Jones in Little Rock.

Dr. Earl D. McKelvey, of Paragould, was recently appointed by the governor to the State Medical Board to succeed **Dr. Max J. Roy** of Forrest City. Dr. McKelvey will serve on the Board for a term of five years.

Dr. Joe Robbins of Conway was elected chairman of the newly established Arkansas Healing Arts Board.

One of the speakers for the annual meeting of the Arkansas Conference of Tuberculosis Workers held in Little Rock May 14-15 was **Dr. M. D. Deneke,** of West Memphis, who spoke on "Chest Clinics—A Team Approach."

Dr. C. Ray Williams, who has practiced in Morrilton for the past twenty years, became a full time staff member of the Veterans Administration Hospital in Little Rock on July 1.

Proceedings of Societies

Doctors of Cleburne County met at Heber Springs in April to organize the Cleburne County Medical Society. Dr. J. C. Barnett was elected president; Dr. C. G. Pearce, vice-president; and Dr. Nathan Poff, secretary. Dr. H. K. Baldridge was selected to represent the Society at the Arkansas Medical Society meetings.

The Fifth Councillor District Medical Society met May 14, at Martell's Lakeside Lodge in Magnolia. Speakers were Charles W. Cathey, M. D., of Oklahoma City, Oklahoma, who spoke on "Newer Diagnostic Methods in Congenital and Acquired Heart Disease," and Edward R. Munnell, M. D., also of Oklahoma City, whose subject was "Present Day Concepts of Cardiovascular Surgery."

"Religion and Medicine" was discussed by four ministers at the May 5 meeting of the Pulaski County Medical Society, held at the University Medical Center.

New Members . . .

Dr. Wayne W. Flora is a new member of the Logan County Medical Society. A native of South Haven, Michigan, he received his preliminary education at South Haven Public School and University of Chicago and was graduated from the Northwestern University Medical School in 1926. Dr. Flora practiced at the following places: Detroit, Michigan, January 1927-April 1930; Chicago, Illinois, May 1930 to March 1958. He is now on the medical staff at the State Sanatorium.

Dr. David L. Walker has been accepted for membership in the Washington County Medical Society. He is a native of Fayetteville, Arkansas, and received his preliminary education at the University in Fayetteville and was graduated from the University of Arkansas School of Medicine in 1957. His internship at Hillcrest Medical Center, Tulsa, Oklahoma, was completed in July, 1958. Dr. Walker is a general practitioner, with his office at Block and Dickson, Fayetteville.

A new member of the Greene-Clay County Medical Society is **Dr. Nathan Morris,** 425 West Jackson St., Piggott, Arkansas. He is a native of Plainfield, New Jersey, and received his preliminary education at Rutgers University, New Jersey, from which he received a B. S. degree. His M. D. degree was obtained at the University of Chicago in 1938. Dr. Morris has practiced at the following locations: North Plainfield, New Jersey, 1940-1942; Plainfield, New Jersey, 1946-1953 and the V. A. Hospital, Little Rock, 1953 to 1958.

Dr. Robert Paul Hughes is a new member of the Miller County Medical Society. He is a native of Okolona, Arkansas, and received his preliminary education from Henderson State College. His M. D. degree was received from Vanderbilt University School of Medicine in 1932. Dr. Hughes is an Orthopedist and his office address is: Southern Clinic, 401 E. 5th, Texarkana.

Dr. W. A. Redman, Jr. is a new member of the Carroll County Medical Society. He is a native of Cheyenne, Wyoming, and he received his preliminary education at Arkansas State Teachers College — from which he obtained his B. A. degree in 1952. He was graduated from the University of Arkansas School of Medicine in 1956. Dr. Redman is a general practitioner with his office at 41 Kingshighway, Eureka Springs.

Dr. John B. Nettles has been accepted for membership in the Pulaski County Medical Society. A native of Dover, N. C., Dr. Nettles received his preliminary education at South Carolina University from which he obtained his B. S. degree in 1941. Dr. Nettles was graduated from the Medical College of South Carolina in 1944. He is in the department of Obstetrics and Gynecology at the University of Arkansas Medical Center.

A new member of the Washington County Medical Society is **Dr. Donald B.**

Answer to What Is Your Diagnosis?

ANATOMY AND DIAGNOSIS: Esophagus-Esophageal Varices (Banti's Disease).

Age, 8; race, C; sex, F.

CLINICAL DATA: Notable increase in size of abdomen at age 1 yr. At 3 yrs. of age patient had episode of hemoptysis and melena. P.E. revealed enlarged liver, spleen and generalized lymph gland enlargement. Splenectomy performed and course was uneventful until hemoptysis recurred and this film obtained.

LAB DATA: RBC 3.16. Hb. 56%. Plat 56,000. Prolonged clotting time.

SURGERY: Splenectomy at age 3 years.

PATHOLOGY: Spleen weight 265 gram and measured 16x10x4 cm. Fibrosis in spleen compatible with Banti's disease.

X-RAY FEATURES: Numerous irregular rounded filling defects in the barium column throughout the thoracic esophagus indicating very large esophageal varices.

*University of Arkansas Medical Center, Department of Radiology.

Baker, 212 N. College, Fayetteville. He is a native of Urbana, Illinois, and obtained his preliminary education at the University of Arkansas—from which he obtained a B. A. degree in 1950. His M. D. degree was received from the University of Arkansas School of Medicine in 1953. Dr. Baker has practiced at the following places: Amarillo Air Force Base, 1954-1956, and Pampa, Texas, 1956 to 1958.

The Carroll County Medical Society announces that **Dr. Thomas C. Flannigan** is a new member of the Society. He is a native of Monette, Arkansas, and received his preliminary education from the Hendrix College, Conway, Arkansas, from which he obtained a B. S. degree in 1950. Dr. Flannigan received an M. D. degree from the University of Arkansas School of Medicine in 1958. He has just completed his internship at Mound Park Hospital, St. Petersburg, Florida, and he has opened his office at 124 N. Main, Berryville, Arkansas.

Dr. William Owen Arnold has been accepted as a member of the Garland County Medical Society. He is a native of Prescott, Arkansas, and received his preliminary education from the University of Arkansas. Dr. Arnold graduated from the University of Arkansas School of Medicine in 1932. He practiced at the Arkansas T. B. Sanatorium from 1934 to 1939; Holt-Krock Clinic 1939-1941; and at Scott-White Clinic, Temple, Texas, until May 1957. Dr. Arnold's office address is 1103 Medical Arts Building, Hot Springs.

Dr. Earl J. Bieri is a native of St. Louis, Missouri and received his preliminary education at the St. Louis University and graduated from the St. Louis University School of Medicine in 1938. He has been in practice in St. Louis. Dr. Bieri has opened his office at 236 Central Ave., Hot Springs, Arkansas, and is a member of the Hot Springs-Garland County Medical Society.

Book Reviews

WATER AND ELECTROLYTE METABOLISM IN RELATION TO AGE AND SEX. Ciba Foundation. Little, Brown & Co. Boston, Mass. Pp. 327. 1958. $8.50.

This Ciba Foundation Colloquia is a series of excellent articles. The internist will find this of great interest. For example, there are chapters on electrolyte metabolism in congestive heart failure, age and renal disease, the effect of steroids on electrolytes, etc. All of these subjects have a practical bearing in the field of internal medicine and many of them are of interest to physicians practicing in other specialty fields, as surgery, urology, etc. This book is not of particular interest to general physicians. It is recommended as an excellent reference to medical students and hospital housestaff. The internist will find it of particular interest. AK

CURRENT THERAPY, 1958. Edited by Howard F. Conn, M.D. W. B. Saunders Co. Philadelphia and London. Pp. 827. 1958.

This excellent textbook has been annually revised and the 1958 edition is the latest in this series which was begun in 1949. The selection of topics covered is excellent and the nature of the treatments recommended is invariably well recognized and accepted. Perhaps the chief danger of this type of book is that both the student and practitioner might make complete reliance on it instead of consulting more detailed treatises in certain complicated diseases; this could be a real hazard. This excellent book is heartily recommended to the medical student and practicing physician. AK

VASCULAR SURGERY: Geza de Takats, M.D., M.S., F.A.C.S. Clinical Professor of Surgery, University of Illinois College of Medicine, Attending Surgeon, Presbyterian-St. Luke's Medical Center and Research and Educational Hospitals, Chicago, Illinois. Illustrated, Pp. 726, 1959. W. B. Saunders Company, Philadelphia and London.

DeTakats is an acknowledged master of vascular diseases. His textbook on vascular surgery is informative, well written, and authoritative. Vascular surgery has become such an important part of medicine now that all physicians should have a good understanding of vascular diseases. Although this textbook does not completely cover all aspects of vascular surgery, it covers the important ones in very excellent fashion. This book is heartily recommended. AK

WOMAN'S AUXILIARY

A Summary of the Year's Work

MRS. GORDON P. OATES

The Woman's Auxiliary to the Arkansas Medical Society used the same theme as the National Auxiliary to the A.M.A., "Safeguard Today's Health For Tomorrow." Emphasis was placed on A.M.E.F., Today's Health, Safety, Recruitment, and Community Service. We had 19 counties contribute a total of $1,574.60 to the American Medical Education Foundation. We had a total of 206 Today's Health Magazine subscriptions. Community Service is something that all county auxiliaries can participate in, and the partial result of a survey showed a total of 31,644 hours of volunteer work being done by doctors' wives in their individual communities, which is not a complete record. The volunteer work that was done included a variety of fields as: charity drives, community drives of all types, hospital auxiliaries, out-patient clinics, working with crippled and handicapped children, activities with scouts, P.T.A.'s, youth centers, serving on Boards and as officers and committee chairmen of many organizations, etc. A big part of our program are out State Loan Funds that help in the field of recruitment as well as a service program, these being: the Ilse F. Oates Student Loan Fund that made five loans this year to medical students; the Martha Harding Gann Loan Fund made three loans to nurses; the Erle Chambers Memorial Library Fund collected 900 books, 265 records over 100 paper back books, one record player and 70 jig-saw puzzles that were distributed to the two Tuberculosis Sanatoriums, McRae and Booneville; also $623.79 in cash was contributed. This loan fund has assistance from many clubs and organizations over the state besides the county auxiliaries. Then we added a new Loan Fund this year with the kindness and generosity of the Arkansas Medical Society, the Dr. and Mrs. W. R. Brooksher Loan Fund for all medical careers. In the field of Civil Defense, one large auxiliary was able to distribute 70,000 Civil Defense cards through the cooperation of the doctors and with the aid of the medical assistants. Also Civil Defense Kits were sold to Auxiliary members, one metal suitcase served as a First Aid Kit and the other as a Survival Kit. Many county auxiliaries worked with their schools in Civil Defense programs and projects. Safety plays another big part in our program with these projects: encouraging all High Schools to have Drivers Training courses, helping get school zones marked, and one group inaugurated a firearms safety program for youngsters and adults through rifle clubs; safety programs and material for other clubs and organizations was provided by our auxiliaries. The State Health Department had some excellent films on Safety. Three counties reported having Safety Councils. Another important phase of auxiliary work this year was in the field of legislation; a lot of credit should be given to the terrific job that the doctors and their wives did to help defeat the Osteopathic Practice Bill, H. B. 92. The County Auxiliaries are to be commended for informing their county Legislators as to their stand, and also the follow-ups that were made while the Legislature was in session. We are indebted to Blue Cross and Blue Shield for the three publications of our Ark-Map (Arkansas Medical Auxiliary Publication), which keeps our Members-At-Large informed on all our activities as well as stimulating the County Auxiliaries with new ideas and exchange of ideas. Our Membership Chairman keeps an up to date file on all doctors' wives in the state, and we have secured an increase this year with 873 total members. We also assist and keep in close touch with our medical students wives organization, SAMA, as they are

our future auxiliary leaders and members. There was a closer working association with the Medical Society this year, having started off the year with Auxiliary Officers, and committee chairmen meeting with State Officers and committee chairmen of the State Medical Society. Also the Advisory Board from the Medical Society was a guiding help to us in everything that we did, for we must never lose sight of the fact that we exist only as an aid and help to the Medical Society.

It was my honor and privilege to have served as President of the Woman's Auxiliary to the Arkansas Medical Society.

Woman's Auxiliary

Mrs. Paul Gray of Batesville, Arkansas, was installed as president of the Woman's Auxiliary to the Arkansas Medical Society at the convention in Fort Smith in April. Mrs. Gray succeeds Mrs. Gordon P. Oates of Little Rock.

The annual spring luncheon meeting of the Woman's Auxiliary to the Garland County Medical Society was held April 20 in Hot Springs with Mrs. Winthrop Rockefeller as speaker. Mrs. Rockefeller's subject was mental health. Mrs. L. R. McFarland presided at the meeting.

On April 23 the Hempstead County Auxiliary held a meeting in the home of the president, Mrs. J. W. Branch. Mrs. Branch reported on the State Convention, where she was elected an Arkansas delegate to the National Medical Auxiliary meeting held in Atlantic City, N. J., in June. The various committees for the Auxiliary were appointed for the coming year. The group voted to make a donation to the American Medical Educational Foundation in Memory of Dr. Don Smith.

The regular luncheon meeting of the Woman's Auxiliary to the Jefferson County Medical Society was held Friday, May 1, in the home of Mrs. R. R. Wooley. Co-hostesses were Mrs. B. H. Cheek, Mrs. W. K. Riley and Mrs. Calvin Simmons. Guest speaker was Mrs. John Sorenson of Little Rock, occupational therapist at the Arkansas Children's Hospital.

New officers of the Sebastian County Medical Society Auxiliary were installed at the May 4 meeting at the home of Mrs. Ralph G. Kramer, Fort Smith. They are: Mrs. W. E. Knight, president, Mrs. Cecil F. Boulden, vice president; Mrs. Morton Wilson, secretary; and Mrs. Roger Bost, treasurer.

The Woman's Auxiliary to the Boone County Medical Society met at the Hotel Seville in Harrison on May 5, 1959. Mrs. William Breit, president, gave a report on the state meeting at Fort Smith in April.

The Pulaski County Medical Auxiliary met May 20, 1959, at the Dr. Charles M. Taylor Memorial. A skit was given by several of the members. New officers installed were Mrs. Frank Padberg, president; Mrs. John McCullough Smith, president-elect; Mrs. Robert Watson, first vice president; Mrs. Mas Hara, second vice president; Mrs. W. E. Morris, recording secretary; Mrs. J. W. Growdon, corresponding secretary; Mrs. Harlan Hill, treasurer; Mrs. James Newbill, historian; Mrs. Joe Buchman, publicity secretary, and Mrs. Hoyt Choate, parliamentarian.

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Interesting Advances in Viral Disease**

FRED M. TAYLOR, M.D.*

Noteworthy accomplishments in the field of basic virus study are largely responsible for increasing clinical interest in various aspects of many different viral diseases. In recent years, for example, an imposing number of strains of new viruses have been isolated from human subjects, principally from the alimentary tract and respiratory system.

Modern tissue culture techniques developed and refined by an untold number of basic investigations provide the means to harvest these new viruses abundantly, together with special opportunity to study their biologic and chemical behavior.

By providing viruses with living cells in which to grow and multiply, efforts to detect previously unidentified viruses and to carry out accurate determinations of neutralizing antibody levels, seriously hampered heretofore by crude and expensive laboratory methods, have been remarkably successful. In addition, they permit the opportunity to investigate with greater accuracy a number of viral diseases, resulting in clarification of problems of etiology and of clinical epidemiology.

The establishment of a specific etiology for many separate clinical syndromes hitherto known only by 'descriptive' labels has been an extremely remarkable accomplishment in this regard. Some of these syndromes include aseptic meningitis, nonparalytic 'polio,' virus pneumonia, 'Boston' exanthem, 'Trench mouth,' and herpetic angina.

As an example, a number of extremely diverse clinical manifestations of which these syndromes are often comprised have been shown to be associated etiologically with the group of Coxsackie viruses (groups A and B) which apparently are widespread in nature. They are responsible for many instances, as well as for epidemics, of aseptic meningitis and virus meningitis, thereby simulating with remarkable ease the clinical and spinal fluid changes of mild nonparalytic poliomyelitis (1, 2). However, there also is gradually increasing evidence that the Coxsackie virus is even capable of causing a paralytic type of illness (3, 4). Infections such as this may account for the occurrence of paralytic illnesses in persons who had been properly immunized with poliomyelitis vaccine.

Other acute illnesses associated with the Coxsackie group of viruses include pleurodynia in adults, herpangina in infants, myalgia, epidemics of benign self-limited "fevers" and fatal encephalitis with myocarditis (especially in young infants) (5).

Improved tissue culture techniques have resulted in the isolation not only of Coxsackie and poliomyelitis viruses, but also of ECHO viruses ("enteric cytophatogenic human orphan") from the alimentary tract of human beings. Partly for this reason the proposal has been made that all three major viral groups be placed in a family grouping termed 'enteroviruses' (6).

The ECHO group of viruses also is associated etiologically with clear-cut epidemics of virus meningitis and aseptic

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meningitis (3, 7), and it is extremely interesting that even cases of transitory paralytic disease due to the ECHO group also have been described (3).

Epidemics of acute illnesses associated with ECHO strains of viruses are characterized by clinical manifestations of fever, stiffness of neck, headache and vomiting, together with spinal fluid pleocytosis and protein elevation. At times this syndrome is accompanied by a rebelliform skin rash and on occasions, by striking neutrophilic leukocytosis in the spinal fluid. Indeed, bacterial meningitis would be strongly suspected were it not for the patient's state of unusual 'well-being,' the normal level of spinal fluid sugar, the normal level or modest increase of spinal fluid protein and the negative bacteriologic study of the spinal fluid.

Both the ECHO group and the Coxsackie group of viruses are responsible for periodic seasonal illnesses characterized by "virus" vomiting and diarrhea and for short term illnesses of fever, abdominal pain and diarrhea (8). This serves to emphasize that an increasing number of widely separate acute illnesses, especially those loosely referred to as 'the virus' and even popularly diagnosed as an 'allergic condition' or 'antibiotic resistant' will be more thoroughly studied with respect to accurate etiology and thus, proper therapy.

Areas for continued etiologic investigations similarly exist with respect to a number of different but often clinically related acute respiratory tract infections. Cytopathogenic agents initially termed adenoidal-pharngeal-conjunctival (APC) viruses and more recently the adenovirus group (9), have been successfully isolated from the respiatory tract with increasing frequency. Strains of the adenovirus group typically cause a variety of clinical manifestations ranging from fever, sore throat and conjunctivitis to bronchitis, laryngitis and systemic 'flu' symptoms (10). Respiratory tract viruses apparently unrelated to the adenovirus group also have been isolated from patients with acute bronchiolitis and laryngotracheobronchitis (10).

Since an appreciable number of different strains of respiratory system viruses (adenovirus, croup-associated, etc.) are being identified, the possibilities for developing specific 'respiratory infection vaccines' are being raised enthusiastically with increasing frequency.

Precise diagnosis of a viral infection therefore requires thorough laboratory evidence, i. e. isolation of the virus from the human subject (stool, spinal fluid, etc.) and demonstration in the patient's serum of a rising neutralizing antibody level to the same virus. Mere isolation of an infectious agent from a person's stool, nose or throat specimen is inadequate evidence of proof of its etiologic role in the patient's illness. Indeed, presence of a micro-organism (viral and bacterial) only may indicate its role as a 'fellow traveler' unless further accurate means are used to prove its specific role in 'cause and effect.'

The practicing physician can now be provided with special etiologic information concerning his patient's viral infections in a number of instances. In turn he should provide the fundamental investigator (virologist and microbiologist) with important data concerning new clinical syndromes (as well as unsolved old ones) and with decided epidemiologic trends of unusual infectious diseases. All these efforts serve to provide the investigator and persons genuinely supporting basic research with continuing opportunity to further the type of studies that improve and benefit in a real way, the health of human subjects.

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Honesty in Health Insurance**

JOHN W. SMITH, M.D.*

I would like to use as a theme for this talk a common expression that we use freely today. It is in the form of a rhetorical question that usually requires no answer. "How stupid can we be?" However, I think it is mandatory that we answer this question. To say that we are being stupid in misusing and allowing to be misused the great voluntary health insurance plan is a great understatement of the *crime*, and I mean *crime*. For voluntary health insurance is the greatest boon that has ever come to doctors, hospitals and the public. Let's face it, none of us can survive without it.

Few people today have the cash to pay for large items, such as homes, cars, refrigerators, doctors, etc. Long ago industry developed installment buying, time-payment plan, to help people pay for things they could not otherwise have afforded. This has been the life blood of business. Today few people can meet the expense of a short illness to say nothing of a long one. The only way they can do it is through insurance, which they are willing to carry as long as the cost is within their ability to pay. Today one hundred and twenty million people are covered by health insurance, to say nothing of health benefits provided by industry and labor for their employees. Again let's face it. Insurance is the life blood of *our* profession.

What is happening and happening rapidly? By the misuse and overutilization of insurance we are going to increase the rates until it will soon be beyond the capacity of the average person to carry. What will happen then? Well, you know as well as I do; we will have government control, socialized medicine. Are we going to kill or allow to be killed the goose that lays our golden eggs? Somehow we never seem to learn that the Federal Government is not a generous Santa Claus, and that what we get from it comes out of our own pockets. The same thing is true of an insurance company. Any benefits that we collect from them we are going to pay for.

Before writing this paper I did a good deal of research. I read our Journals, reports of surveys, to be *sure* that the use, abuse and over use of health insurance is not merely a local problem but a national one, not just the experience of *one* doctor but of us all.

In the interest of time I am not going to quote references but just try to give you a composite picture of what is happening to the health insurance plan and what we face today. And it is not a very pretty picture. For it also reveals an alarming, general weakening of the fabric of the integrity of our people. How many requests are made upon us to *evade* the letter of an insurance policy, to do something "slightly dishonest," something we are told "would not come out of our pockets," "why, the insurance company would pay for it," and it would enable the patient to collect for medical care that under their policy they are not entitled to. For instance, the other day a prominent man, occupying a high place of leadership in the community, called me. He wanted a tonsillectomy for his child but he had not

*1415 West Sixth, Little Rock, Arkansas.
**E.E.N.T. Session, Arkansas Medical Society, April 14, 1959.

had his insurance policy for a full year which is required for a tonsillectomy, so he asked me to write a letter to the company stating the operation was an emergency. Well, there you are. We all know a tonsillectomy is never an emergency. Every one of us has had similar experiences. What are such things doing? Weakening *his* integrity, *my* integrity, and weakening the health insurance plan. Have we helped this patient by acceding to his request? No, we have right there helped to increase the rates he will pay in the future.

Other abuses? Doctor after doctor testified to the pressures that are brought upon them by the health insured public. One doctor reported that he had had many experiences in which people who are completely covered by insurance ask or demand diagnostic procedures that were not in any sense of the word indicated. Another doctor believed that many patients try to pressure doctors to get their diagnostic service covered *somehow or other* under their insurance plan whether they are entitled to it or not. Another physician said, "Not a day goes by that we aren't pressured to do something we would not like to do." There is the pressure "If you don't, I'll go to someone who will," which has an impact on the pocketbook of the doctor. As one physician honestly acknowledged, "There are times when I have acceded to a patient's wishes although I knew it was not necessary for the practice of good medicine, but it is an economic pressure that is hard to withstand."

Another doctor called our attention to the fact that in many areas we ourselves are at fault. All too frequently, *before* we make up our minds what diagnostic procedures or hospitalization is necessary, we ask the patient, "Do you have health insurance?" This is bad psychology and bad education of the patient. We ourselves must guard against the temptation of the abuse of over-prescription, over-utilization and over-charging simply because a patient happens to have insurance coverage. We and the public must clearly understand that there is no such thing as a "free ride in the voluntary health plan." Not long ago Blue Shield sent a routine letter to a subscriber stating "$150.00 has been paid to 'John Doe, M. D.' for performing an appendectomy on you." The subscriber replied, "I am glad you paid my doctor $150.00 but he didn't take out my appendix. He removed a wart from my neck."

One surgeon sent a staggering bill for an apparently life-saving operation performed on Los Angeles patient. "What baffled us," said the investigators, "was not only the size of the bill, but trying to figure *how* the surgeon had performed this miracle in Los Angeles while the patient was in New York."

While these cases are scandalous and none of us would be guilty of such perfidy, the fudging or creeping costs are even more dangerous. Take a surgeon who normally charges $150.00 to $250.00 for an appendectomy depending on the income of the patient, *but* if he has insurance he always charges the top figure of $250.00. When we are guilty of doing things like this, if we are not really dishonest, we are sabotaging the whole health insurance system.

Since ninety-three cents of every dollar of premium income of insurance is spent for hospitalization, let's have a look at that side of the picture. Abuses here are glaring. All concerned must share the responsibility: the hospital, the doctor, the public, and the insurance company. There was the case of one young couple who persuaded the doctor to keep their youngster another day in a hospital because they were going to a football game. We know of another case where an elderly man, an invalid, was confined to a hospital because his daughter and son-in-law wanted to go away for a week-end. Recently a patient brought his bill from the hospital to me to show me the gross overcharge for the operating room. I talked to the administrator about it and got this reply, "Let it go. The insurance company has already paid for it."

I would respectfully like to call your attention to a recent suit of the Reserve Life Insurance Company brought against Neoshoba County, the County Hospital, members of the hospital board, and the administrator, to recover for overcharges made under the policies of the administration of the hospital. The outcome? Well, the insurance company was award-

ed a judgment of $5,779.62. This could happen to any hospital or doctor. Statistics show too wide a variance between hospitalization of insured patients and non-insured; fourteen per cent of un-insured patients are hospitalized; this doubles for those who are insured. Also, there is a great variance of the average length of stays in different hospitals for the same illnesses. Again the insured patients are hospitalized for longer periods than are non-insured.

It is calculated that hospital abuse may cost more than one hundred million dollars a year. Every insured patient who occupies a bed while he has a wart or mole removed, or while he has some simple laboratory or X-ray tests performed that could have as easily and safely been done in an out-clinic service, is contributing to the rising cost of hospital operation and to the cost of his health insurance.

Still other abuses have been blamed on inefficient hospital procedures, unreasonable scheduling, log-jams in operating rooms, and the traditional shut-downs of laboratories on the week-end. Often patients are brought in on Friday and kept over the week-end until the laboratory opens. This over-use of hospitals not only raises the cost of medical care but it requires the construction of more hospitals at taxpayers' expense. Each hospital bed costs $20,000.00. What can be done about these abuses? One hospital, with a six-weeks backlog of admittance requests, formed a committee on admissions and discharges to work out and execute disciplinary procedures, rules and regulations to correct abuses. Each morning for two months this committee reviewed admissions made during the past twenty-four hours. To shorten the stay of patients, X-ray and laboratory tests had to be ordered before noon on the day of admission. Consultation requests were to be answered immediately. Doctors were required to authorize a patient's discharge on the day before he was to leave. The result? The average patient stay in the hospital was decreased by one-half day. Does this sound small? Not when you consider that one-half day saved on each hospital case would effect a saving of more than three million dollars a year. Even a tenth of a day would save more than $150,000.00 a year. Also advance notice for admission of patients was reduced from six weeks to three days. An average of forty more patients are being admitted to the hospital each month without any new beds being added. Could not our own hospitals profit by such a plan? Will they not eventually be better off by doing this than they will be by increasing hospital costs five to ten per cent every year and thereby putting hospitalization beyond the capacity of the public to pay and price themselves out of business, forcing the Federal Government to step in?

The insurance companies, and they are not always the small companies, are certainly guilty of over-selling the patient on the insurance policy. Many of the agents tell their buyers that their policies cover things that they do not cover, and they fail to tell them that they have anywhere from nine months to a year waiting period on some of the coverage. The agents very often tell the prospective buyers that they need not worry about these waiting periods, that they can have something done about it, and then when the time comes the patient is left holding the bag. All of us have seen policies where they list only a few operative procedures and then in small letters they say "All other cutting procedures $10.00." I had one patient who had major surgery and all she was able to collect on her surgical bill was that ten dollars. Many times an insurance company will delay and delay before paying a legitimate bill. It is not infrequent that a doctor is compelled to complete the same form three or four times before the patient gets paid.

Each of you here has had your own experience with every abuse I have mentioned. We are all under severe pressure. What can we do? We can bring these problems before our County Medical Societies. We can take them before hospital administrators and show them what a threat they are to future medical care. We can ask them to review their procedures and to correct abuses. We can pledge them our wholehearted support. Also, let us as doctors take an unequivocal stand that we will refuse to be a party in any way to any abuse, that we will refuse to take any advantage of the insurance plan. This will ensure the future of

us all. One of the greatest assets a profession has is the confidence the public has in it. Let us keep our integrity untarnished. Let us get back on the gold standard and let our word be as good as gold. We might even have an educational campaign through news media.

People in *stupidity* forced Socrates to drink the cup of hemlock. Are we in stupidity going to destroy ourselves by destroying the ability of the public to carry health insurance because of exorbitant rates due to abuses? Each time we misuse insurance in any way we are taking slow poison; we are forcing compulsory health insurance with governmental supervision of medical practice. Is that what we want? *No.* Then the time has come when we must "Wise up"; the doctor, the patient, and the hospital; and, lastly, the insurance company must put their "fine print" in understandable reading so their policyholders will know what they are entitled to and what they are not entitled to.

Injuries to the Spinal Cord**

F. KEITH BRADFORD, M.D.*

To a large extent, the outcome in patients with injuries to the spinal cord is determined by the severity of the original injury. It is essential that these patients receive the best in nursing and in medical care in order that avoidable complications do not prevent their return to partial usefulness or, in isolated instances, to relatively complete usefulness. There is no test to determine anatomical severance of the spinal cord, but inferences from several facts may strongly suggest this unfortunate occurrence. The patient who suffers immediate, complete paralysis with a complete sensory level corresponding to the level of motor involvement and who shows absence of the tendon, abdominal, cremasteric and plantar reflexes with sphincter paralysis has what is termed a complete lesion of the spinal cord. The completeness is physiological, not anatomic, but if some indication of partial recovery of function does not appear early in the post-injury period, the probability of actual anatomic severance becomes great. It is important that slight lowering of motor and sensory levels does not materially improve the prognosis.

Compression fracture-dislocation and gunshot and stab wounds are responsible for the vast majority of spinal cord injuries. Associated injuries are often present, and their urgency may cause spinal cord injury to be overlooked. Gunshot wounds of the spinal cord are so routinely accompanied by serious abdominal and chest injuries that laminectomy must not be undertaken until there is reasonable assurance that there are no other, more urgent injuries. In general, the chances of materially improving the prognosis as to cord function by neurosurgical intervention are sufficiently poor not to justify such intervention until stability of the patient's condition establishes him as a reasonably good operative risk.

ANATOMICAL CONSIDERATIONS

When the spinal cord has been injured, defects in function occur from damage to gray matter and roots and from damage to afferent and efferent tracts within the white matter. The damage to gray matter and roots may produce positive neurological signs which give evidence of the level of spinal cord involvement. Radicular pain from the sensory root involvement often marks the level of the cord lesion. Motor involvement from root or anterior horn damage is of lower motor neuron type and is characterized by lasting reflex loss (or diminution if involvement is partial) and later atrophy of the affected muscles. Sensory involvement of the lower motor neuron type affects all

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modalities of sensation since it results from damage to posterior roots and posterior horns. This type of sensory involvement is clearly demonstrable only when the fiber tracts conducting sensation from the lower part of the body remain relatively intact.

Damage to efferent tracts in the spinal cord is not limited to the corticospinal tract by any means, but what we know as signs of pyramidal or corticospinal tract involvement are actually the signs of interruption of all efferent tracts. Sudden, complete interruption produces absence of all reflex activity, including absence of the plantar reflex. The term "spinal shock" is applied to this flaccid, areflexic state. Notably, at this stage motor paralysis of the upper motor neuron type is not separable from that of lower motor neuron type. However, after days or weeks the reflex activity will return if the paralysis is of upper motor neuron type, first with an extensor plantar response and then with active tendon reflexes, gradually becoming hyperactive. In contrast, lower motor neuron paralysis is always flaccid and, within 3 or 4 weeks, permits marked localized muscle atrophy. Damage to the afferent tracts, if complete, produces loss of all sensation below the level of involvement. However, the loss is a sum of the involvement of the posterior column (position, vibration and touch, all homolateral), of the lateral spinothalamic tract (pain, heat, cold, all contralateral), and of the anterior spinothalamic tract (touch, contralateral).

A partial lesion of the spinal cord will often produce some degree of "spinal shock," but may permit activity of the tendon reflexes and usually produces a positive Babinski sign. Tendon reflexes can be quite hyperactive. Sensory changes are likely to be less distinct, and changes are referable to particular afferent tracts.

From the standpoint of clinical interpretation of the neurological examination, it can be said that structures within the spinal cord differ in their susceptibility to pressure or damage from injury. First in susceptibility is the gray matter, next the corticospinal tract, next the posterior column, and last the spinothalamic tract. To illustrate this difference in susceptibility, it is not uncommon to have, in the acute stage of injury, complete motor paralysis, definite impairment of position and vibratory sense, and little or no loss of pain sensation.

The Brown-Sequard syndrome, which appears with hemisection of the spinal cord, illustrates well the functions of the few spinal tracts which can be analyzed on neurological examination. If the hemisection is on the right, motor function, position sense and vibration sense are lost on the right (corticospinal tract and posterior column) and pain and temperature sensation is lost on the left (lateral spinothalamic tract). Touch sensation is preserved on both sides of the body, on the left by the left posterior column (uncrossed) and on the right by the left anterior spinothalamic tract (crossed). Often, in partial lesions, damage is predominantly unilateral with demonstrable elements of the Brown-Sequard syndrome present. It can be readily seen that partial lesions permit and require far more detail of examination than complete lesions.

Complete lesions above the 4th cervical segment, whose anterior horn cells supply the diaphragm, produce death from paralysis of the respiratory muscles. Lesions of the lower cervical region produce paralysis in the segmentally lower innervated muscles, innervated by the brachial plexus, and a sensory level in the upper extremities. Thoracic lesions produce various sensory levels, but the exact motor level cannot usually be determined. The innervation of the lower extremities comes from the portion of spinal cord within the arches of the lower 3 thoracic and 1st lumbar vertebrae. Only the cauda equina extends below the 1st lumbar vertebra, and only lower motor neuron lesions can be produced below this level. The cauda equina is more resistant to trauma than is the tip of the spinal cord and, as a result, fractures of the 1st lumbar vertebra may produce a cord bladder with little evidence of motor paralysis. However, the presence of saddle anesthesia or hypesthesia, particularly in the immediate perianal area, confirms the spinal cord origin of the bladder impairment.

PRACTICAL CONSIDERATIONS

Patients with spinal cord injuries should be transported on rigid stretchers or on a wide board or door. The prone position is recommended to avoid the danger of aspirated vomitus. In moving the patient in the emergency or x-ray room, the trunk and neck should be moved as one piece. Many fracture dislocations are firmly fixed in the new position, but some are not.

A general survey of the patient should determine the necessity for emergency measures directed toward the airway or circulatory system. Protection of the body from undue pressure in any area from remaining too long in one position must begin at once, since many decubitus ulcers originate from local ischemia occurring before routine nursing measures are instituted. Cleanliness and frequent changes of position must become habitual. The discomfort of a patient in all positions save one must not be allowed to interfere with proper rotation of positions.

If there is evidence of paralysis of the lower extremities, the use of a Foley catheter can be instituted early. Constant care is necessary to avoid any pull or tension on the catheter or tubing. Catheters should be changed every 5 to 7 days, and should be irrigated daily and kept draining freely.

Management of the bowel varies considerably. Distention is treated with a large rectal tube and with hypodermic prostigmin injections (1 cc. of 1:2000) if surgical conditions of the abdomen are excluded. Oil retention, soap suds or special enemas may be necessary.

In cervical lesions, early tracheostomy may be necessary, but is more frequently required to aspirate the bronchial tree at a later period because of the inadequacy of coughing and the incompleteness of ventilation.

X-RAY EXAMINATION

The level to be x-rayed is usually apparent from the examination. Often, in patients with paraplegia from thoracic fractures, films are thoughtlessly taken of the lumbosacral spine. Localized pain is often a reliable index as to the site of fracture. The lateral view is essential for showing compression fracture and dislocation. The antero-posterior and oblique views will frequently show evidence of fracture of the neural arch, but fractures are often much more extensive than is apparent on x-ray. The lower cervical and upper thoracic vertebrae are difficult to demonstrate well on lateral x-ray, but with adequate effort usable films can be obtained.

In bullet wounds, the area of bone damage may be easy or difficult to visualize. Lead bullets often leave fragments along their course. Usually, a bullet should be excised if it is partly within the spinal canal, but little is expected other than to lessen the chances of inflammation or delayed infection.

The degree of offset of a dislocated vertebra often does not correspond to the degree of spinal cord involvement. The laminae may be completely separated by fracture and not dragged forward with the dislocated vertebral body. Only a slight degree of dislocation can be demonstrated by x-ray in some patients with total interruption of spinal cord function.

When evidence of trauma is minimal, it is important to remember that rupture of a thoracic or lumbar disc can occasionally produce a lesion of the cord or cauda equina. In rare instances, a spinal cord tumor, previously producing few or no symptoms, will produce paralysis following injury. On a number of occasions, trauma has resulted in a combined cervical root and cervical cord lesion as a result of marked encroachment on the cervical spinal canal by extensive osteoarthritic changes with no evidence of fracture or dislocation. Myelography may be necessary for diagnosis in these conditions.

SPINAL PUNCTURE

It is probably wise to defer spinal puncture until facilities are available for laminectomy, since partial lesions may be aggravated by this procedure when a manometric block is present. It is best to use a number 18 spinal needle and a water manometer to determine the presence of a partial or complete block. The fluid is often opalescent with blood cells. Pressure rises, apparent upon straining or abdominal compression, establish that proper puncture of the subarachnoid space has been made. If, with a satisfac-

tory puncture, jugular compression produces a rise of only a few millimeters or no rise, a complete block is said to be present. If the rise is greatly delayed, is jerky in its occurrence or if the pressure hangs at a high level after jugular compression, a partial block is suggested. Pressure can be lowered below the block and the manometric studies repeated.

SURGICAL CONSIDERATIONS

There is, unfortunately, much unwarranted optimism about the value of early laminectomy in complete spinal cord lesions. If the examination is overly hasty, elements of incompleteness of spinal cord involvement can be overlooked before operation. It is unfortunately true that some surgeons class a partial lesion as a complete one before operation and then call attention to improvement later, attributing it to the surgery rather than to the favorable nature of the lesion. With immediate operation, the postoperative course embraces the first few days after injury, the period in which the incomplete nature of the lesion would likely have become apparent without surgery. This is said not because of any opposition to early surgery, but because of a great antipathy toward attributing to surgery improvement which cannot with intellectual honesty be attributed to it.

Partial spinal cord lesions which are showing improvement should not often be operated upon. If a partial lesion tends to progress or become complete, operation is generally indicated. The presence of manometric block is, in itself, an indication for laminectomy in a patient with an unfavorable lesion. The presence of bone fragments within the spinal canal is often indefinite on x-ray, but is suggestive that operation may be helpful.

Cervical laminectomy is undertaken less readily than thoracic or lumbar laminectomy both because of the relatively high mortality which usually accompanies its use in cervical fractures and because of the improvement of vertebral position which can be obtained by skeletal traction to the skull utilizing Crutchfield tongs. Application of tongs is usually indicated since, even if laminectomy is necessary, it is much more readily performed with the neck in traction. Tong traction with as much as 30 or 40 pounds is tolerated for a few hours, and weights of 10 to 15 pounds can be used over a prolonged period. The mortality rate in cervical laminectomy is lowered by expert anesthesia, use of tracheostomy, and by excellent nursing.

Laminectomy is more difficult in fracture-dislocation than in elective surgery because of the looseness of fragments and the alteration of the contour of the spinal canal. Great care must be exercised not to rock fragments in a way which will increase damage to spinal cord or nerve roots.

Incised wound of the spinal cord may result in drainage of cerebrospinal fluid, or an arachnoid cyst may form at a later date from penetration of the dura mater. For this reason, early surgical intervention is often indicated. If a fragment of knife blade is broken off in the spinal canal, it should be removed.

If the spinal canal has been traversed by a bullet, the prognosis for even partial recovery is poor.

In immediate, complete lesions of the spinal cord, the prognosis for recovery of any useful function is poor, with or without surgical intervention. However, there is often evidence of a spinal manometric block and x-ray evidence of fragments of laminae within the spinal canal. Laminectomy is usually undertaken in these patients, with the exception of cervical cases, at the earliest time it is thought that the exploration can be reasonably well tolerated. It is important that surgeon, patient and family alike understand that the operation can improve certain factors that are unfavorable to return of spinal cord function, but can do nothing to restore an irreparably damaged spinal cord. Some neurosurgeons have adopted the plan of non-intervention in these cases, a position that is difficult to attack with any real evidence of bettering the prognosis by surgical intervention. Some neurosurgeons have advocated laminectomy within minutes of the time these patients are admitted to the emergency room. This appears to be an extreme position, and one which, if generally adopted, would result in a high operative mortality due principally to the development of complications from

associated injuries not recognizable at the time of admission.

The decision to operate despite the minimal probability of improving the prognosis is partly a philosophic one. Most of these patients will be subjected to surgery at a later date if operation is not performed early. There is certainly a better possibility of benefit in early than in late intervention. Late pain problems due to nerve root involvement appear to occur less frequently in operated patients. The attitude of the patient generally seems more favorable after even a futile surgical effort has been made than when no effort has been made. All things considered, intervention at the earliest time commensurate with operative safety appears to be the treatment of choice.

Conference on Diseases of Bones and Joints

THE SKELETON

The second monthly Orthopaedic-Radiology-Pathology Conference was held at the University of Arkansas Medical Center the evening of April 21, 1959 and was attended by many doctors from these specialities, as well as many residents and students at the UAMC. The subject for the evening was a continuation of the discussion of malignant bone tumors. These cases were discussed from their radiologic, pathologic and treatment aspects. The following five cases were thought to be of particular interest.

CASE I

M F

A 13 year old colored male, first noticed pain in the right leg below the knee when he fell and struck brick five months prior to admission. An area with swelling, tenderness and increased temperature occurred; and he was treated by antibiotics without improvement. On admission a very large hemispherical mass was noted in the upper medial aspect of the tibia varying from hard to soft in consistency. This mass was very tender and fixed to bone. The overall measurement was approximately four inches in diameter. A mid-thigh amputation was performed and he has since remained well a period of three years.

Pre-operative x-ray of the tibia shown in Figure 1 reveals the typical picture of osteogenic sarcoma with sun-ray appearance in much of the tumor area, also a well-defined Codman's angle where the periosteum had been elevated at the lower limit of the tumor. Location near the end of the diaphysis is quite typical also with failure to extend to the joint surface. While there is considerable bone formation in this tumor, this is quite a variable factor, as will be seen in the next case.

CASE II

FH

A 15 year old white female, was admitted complaining of pain in the knee region of seven months duration. A mid-thigh amputation was performed one month later; however, this did not prevent multiple metastasis and the patient expired 2½ years after first seen, or three years after onset of symptoms.

Pre-operative x-rays shown in Figure 2 reveal a tumor with much less bone formation than that found in Case I. Again, the tumor is located near the end of the diaphysis and does not involve the epiphysis. There is a suggestion of sun-ray appearance in the portion of the tumor posterior to the femur and a well-defined Codman's angle anteriorly, as seen in the lateral view. Pathologic studies revealed

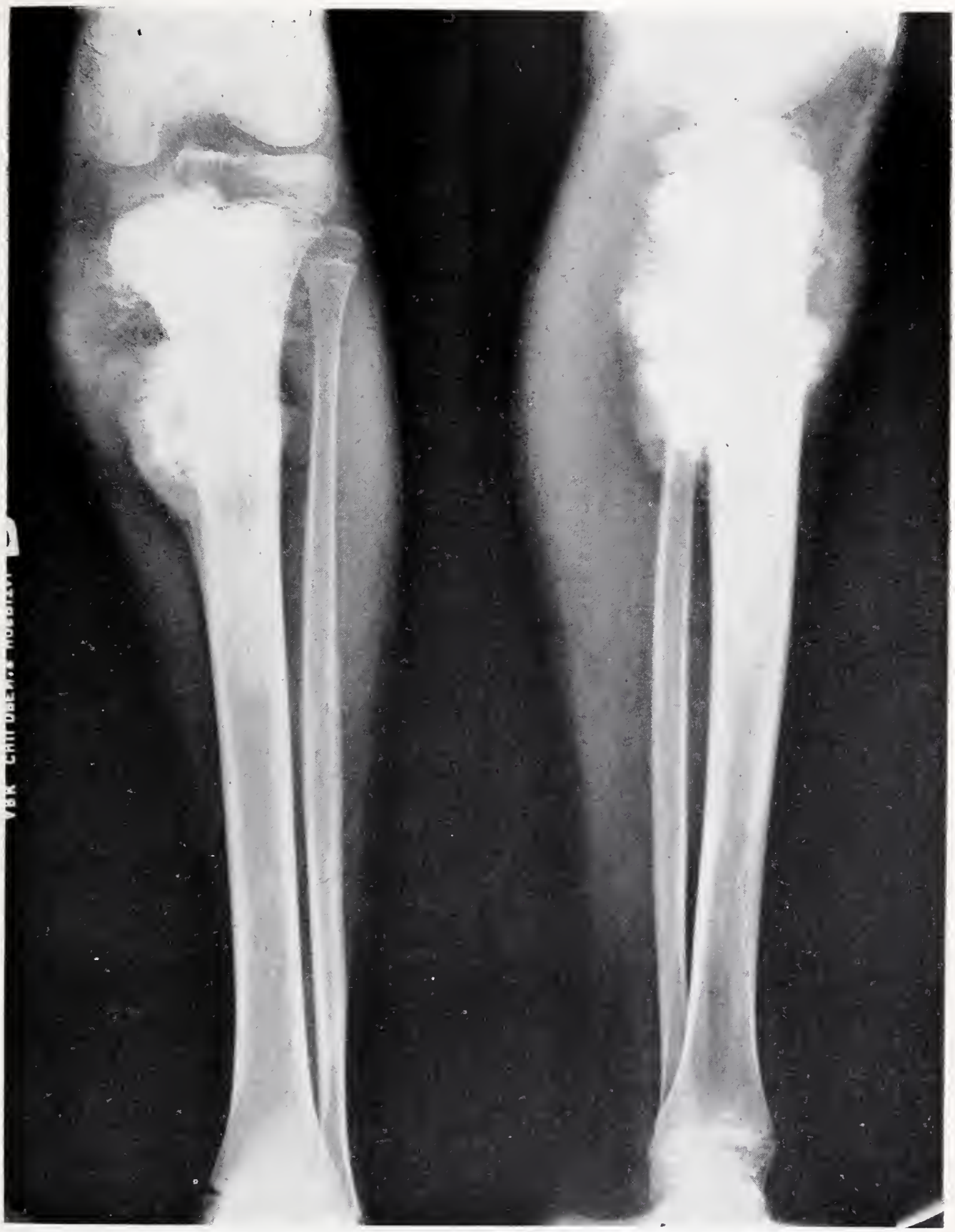


Figure I.—Osteogenic sarcoma with considerable tumor bone formation showing characteristic location at end of diaphysis without involving the epiphysis; also showing sunray appearance of the tumor bone and Codman's angle where periosteum has been elevated at the lower margin of the tumor.

the usual picture of osteogenic sarcoma. The lesser amount of bone formation does not indicate a greater degree of malignancy, since some very dense tumors have shown very rapid growth and early metastasis.

CASE III

WH

A 9 year old white male revealed a somewhat similar lesion in an unusual location. At the time of admission he was found to have a large mass involving the right side of the mandible with a large, ulcerative skin lesion. A biopsy was performed, and the patient was treated with x-ray therapy with good initial response, but died three months later. This type of tumor is resistant to radiation and the outlook was unfavorable. Figure III.

CASE IV

DO

A 12 year old white male, gave a history of pain in the right thigh of three weeks duration. This pain was dull, aching in character, and worse at night, associated with general malaise and malnutrition. Physical examination revealed a fusiform enlargement of the right thigh which was firm and slightly tender.

Alkaline phosphatase was slightly elevated to 12.5 Bodansky units.

X-rays as seen in Figure 4 reveal a cen-



Figure II. — Osteogenic sarcoma with little bone formation, a well-defined Codman's angle is seen superiorly in the lateral view and a suggestion of sun-ray appearance posteriorly. The amount of bone formation bears no direct correlation with the degree of malignancy or rapidity of metastasis.



Figure III.—Osteogenic sarcoma involving the right side of the mandible seen in the left hand view.

tral area of destruction which appears to expand the cortex into a fusiform mass by stimulation of sub-periosteal bone formation. There is some tendency to the layered or onion skin effect rather typical of Ewing's sarcoma.

CASE V

MB

A 12 year old white male, was admitted complaining of pain and swelling of the right thigh of two months duration.

X-rays revealed again an area of enlargement in the mid-femur with well-defined layered or onion skin type of periosteal reaction.

The diagnosis of Ewing's sarcoma was confirmed by biopsy and the patient received x-ray therapy, but died seven months later.

The tumor described by Ewing and thought by him to be of endothelial origin is still a subject of considerable debate; and its endothelial origin has been doubted. The tumor has apparently been frequently confused in the past with reticulum cell sarcoma, a tumor which also involves the shaft of a long bone and gives a central area of involvement. It also has a similar appearance on microscopic section in that there are many closely packed round nuclei. The finding of reticulum fibers in the latter tumor by special staining techniques has been considered of significance; however, it is considered by others not conclusive since reticulum fibers can be found in Ewing's sarcoma. The two tumors have widely different prognoses; the Ewing's sarcoma being almost uniformly fatal while the reticulum cell sarcoma carries a five-year cure rate in the neighborhood of forty per cent. Both tumors are highly sensitive to x-ray therapy. Figure V.

At the conclusion of the Conference it was decided to discuss benign tumors of bone at the next meeting.*

*The monthly Orthopaedic-Radiology-Pathology Conference is held on the third Tuesday of each month at the University of Arkansas Medical Center in Room B-114 at 8:00 P.M. All doctors interested in conditions involving the skeleton are cordially invited to attend.

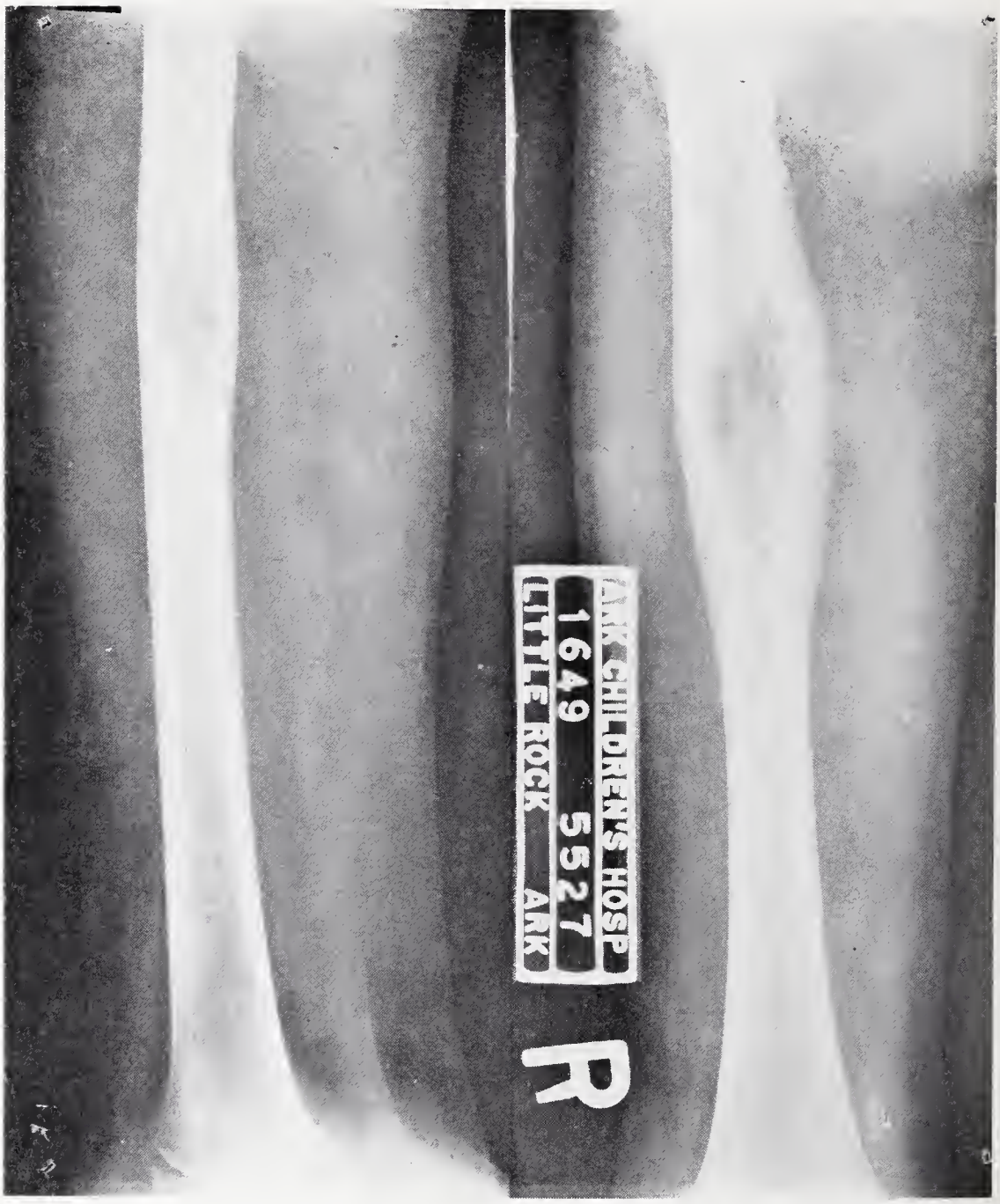


Figure IV.—Ewing's sarcoma involving the right femur at the junction of middle and upper third. A destructive lesion with periosteal bone formation resulting in expansion of the cortex.

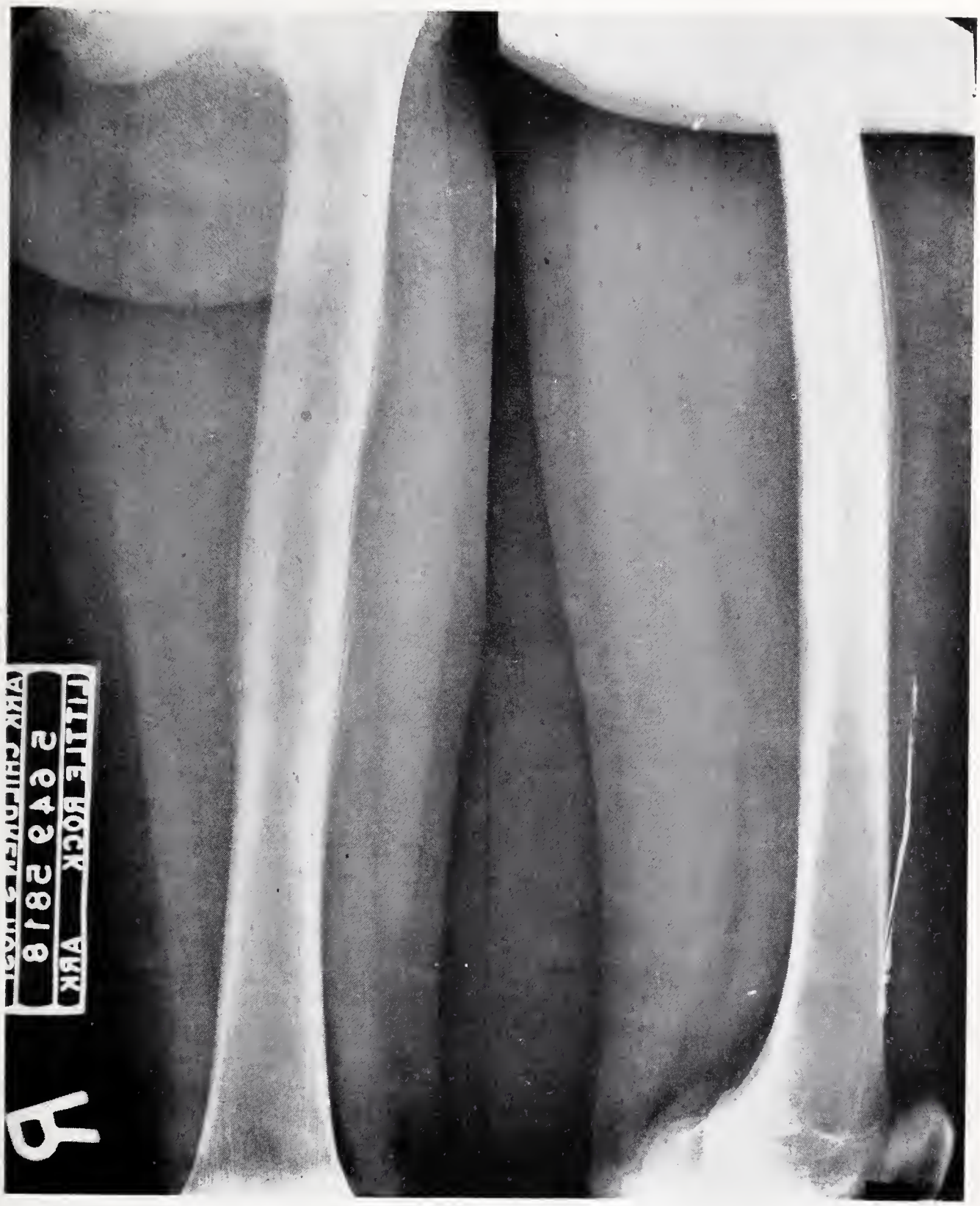


Figure V.—Ewing's sarcoma of upper femur showing layered or onion skin type of periosteal bone formation.

What's NEW

The Treatment of Carcinoma of the Larynx

HENRY C. RIEGLER, M.D.*

At the Roswell Park Memorial Institute, Buffalo, New York, carcinoma of the larynx was treated by radiation therapy previous to the year 1951. After 1951 increasing numbers of these malignancies were treated by surgical excision. This study was made to determine whether the increasing surgery was justified.

In the 20 years, 1935 to 1955, there were 491 patients seen with carcinoma of the larynx. Of this number 428 were adequately documented for study.

Experience has shown that malignancies confined to the vocal cords respond well to treatment. Those lesions that involve the laryngeal structures above the cords do not have as good a prognosis. For this reason the study was divided into 3 groups:

1. Lesions of the cord—those lesions confined to the vocal cord without evidence of fixation. 56 cases.
2. Lesions of the intrinsic larynx—those lesions involving the cords, ventricles or ventricular bands (false cords). 102 cases.
3. Lesions of the extrinsic larynx—those lesions invading the aryepiglottic fold, arytenoids or epiglottis. 270 cases.

The 158 patients with lesions of the cord or intrinsic larynx presented with a chief complaint of hoarseness. 60% of these patients had been treated by more than one physician for laryngitis without having had a mirror examination of the larynx. There were only 3 females among these patients. The ages of the patients were between 30 and 90 years, however, 120 were in the 5th and 6th decades. None of the patients with lesions confined to the vocal cord had palpable metastatic neck nodes, but 17% of those with lesions of the intrinsic larynx had palpable metastatic neck nodes.

The 270 patients with carcinoma of the extrinsic larynx had a more varied symptomatology: hoarseness—74%, sore throat—62%, dysphagia—59%, metastatic neck node—30%, dyspnea—15%. Twenty-four or about 10% were females. The patients were between the ages of 30 and 86 years, but the great majority were in the 5th and 6th decades. 57% of these patients presented with palpable cervical adenpathy.

Radiation therapy for laryngeal lesions was administered with 200 kilovolt machine through 2 anterolateral ports, 0.9 mm. of copper half value layer, and delivering a tumor dose of 4,500 to 6,000 roentgens fractionated over a 4 to 5 week period.

There were 56 group 1 lesions (confined to the cord and no evidence of fixation). A laryngofissure operation was performed in 28 instances. Radiation therapy was used in the other 28. A comparison of the results at the end of 24 months follows:

	Radiation	Surgery
Free of disease	14 or 50%	21 or 75%
Recurrent disease	6 or 17%	3 or 10%
Died of disease	5 or 20%	2 or 8%
Died of other causes	3 or 13%	2 or 7%
	28	28

There were 102 lesions in group 2 (intrinsic larynx). Surgical treatment was used in 31 instances. The majority were laryngectomies, but in a few instances a combined larynx-neck dissection was done for a palpable node. Radiation therapy was the treatment for 71 cases. Results at the end of 24 months were compared:

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	Radiation	Surgery
Free of disease	12 or 17%	27 or 84%
Recurrent disease	4 or 6%	0
Died of disease	55 or 77%	2 or 8%
Died of other causes	0	2 or 8%
	71	31

There were 270 patients with lesions of the extrinsic larynx (group 3). The operation indicated for these patients was combined larynx-neck dissection because of the high incidence of metastasis. Only 29 patients were treated surgically since this procedure has been done only in more recent years. 241 of these cases received radiation therapy. The end results after 24 months were compared:

	Radiation	Surgery
No evidence of disease	34 or 14%	13 or 45%
Living with disease	11 or 4.5%	2 or 7%
Postoperative deaths	0	2 or 7%
Died of disease	188 or 78%	8 or 27%
Died of other causes	8 or 3.5%	4 or 14%
	241	29

This study led to these conclusions:

1. Carcinoma of the larynx is best treated by surgical excision.
2. Lesions confined to a vocal cord without fixation should be treated by laryngofissure.
3. Lesions of the intrinsic larynx without palpable nodes should be treated by laryngectomy. When nodes are palpable a larynx-neck dissection should be performed.
4. Lesions of the extrinsic larynx should be treated by a combined larynx-neck dissection.
5. The prognosis for carcinoma of the larynx is very good when treated by the proper surgical excision.

References

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A TEACHING SEMINAR
FROM THE
UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

Pyelonephritis

ARTHUR F. MOORE, M.D.*

Urinary tract infections are now well accepted as one of the leading infectious diseases the physician is called on to treat, ranking next to upper respiratory tract infections in frequency. In several hospitals (1) the incidence of pyelonephritis has exceeded that of respiratory infections. Unlike the treatment of most infections of the respiratory tract, the physician soon finds that he approaches pyelonephritis, particularly the chronic form, with somewhat less enthusiasm than the detail man representing the various pharmaceutical houses.

Weiss and Parker (2) in their pathologic study were among the earlier recent investigators to point out the strikingly variable and often chronic course of pyelonephritis frequently terminating in urema.

There have been several recent detailed reviews of the subject (3, 4) and no attempt will be made to do so here, but merely to summarize some of the generally accepted facts and theories with some emphasis on bacteriologic diagnosis.

Recent pathologic studies (2, 5-8) have shown pyelonephritis to be present in 9 to 20% of autopsies from general hospitals. In approximately 3% of autopsies (7) pyelonephritis was the major cause of death. In some of the studies pyelonephritis was unsuspected in 70 to 80% of the cases. Pyelonephritis has been recognized for some time as a frequent cause of the contracted kidney and is now accepted as the most common of all renal diseases and the most frequent cause of uremia.

The junior medical student would experience little difficulty arriving at the proper diagnosis of the patient who presents with chills, fever, dysuria, pyuria and costovertebral angle tenderness as being pyelonephritis; in fact, the patient with such symptoms usually suspects the diagnosis. The studies mentioned above, however, reveal that an amazing number of cases of pyelonephritis found at autopsy were unsuspected clinically. Obviously, then, there must be many cases which do not manifest the usual textbook symptoms. It is not uncommon in medical centers to see patients, who were diagnosed as acute pyelonephritis several years before, present with severe renal insufficiency, having apparently been asymptomatic in the interim.

CLASSIFICATION: Schreiner (1) has given a simple practical classification of pyelonephritis. Progress in medicine is slow unless one is able to diagnose accurately and properly classify disease. This is as important with renal diseases with its varied subdivisions as with heart disease, where such progress has been achieved in recent years.

1) Acute, chronic, or healed
2) Atrophic or nonatrophic
3) Uni- or bilateral
4) Primary or secondary
5) Urogenous or hematogenous.

Here one attempts first to classify the disease as to its present stage. Secondly, it is classified to denote whether there is a change in size of one or both kidneys secondary to scarring and subsequent contraction. Thirdly, the disease process may on occasion be classified as unilateral or bilateral. In the majority of cases this will not be possible nor necessary. Fourthly, the disease may be classified as to whether it is primary or secondary. Thus a case believed to be primary may later be termed secondary when it is found the disease is secondary to lower urinary obstruction or perhaps secondary to bacterial emboli from a remote infec-

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tion, etc. This would also allow classification as to urogenous (ascending infection) or hematogenous.

The clinical spectrum of pyelonephritis is highly variable, from that of acute onset of chills, fever, dysuria, pyuria and costovertebral angle tenderness to that of the completely asymptomatic patient.

Studies of large series of patients show that it is most commonly seen in the young, the pregnant, and the aged. In the young and the aged it is most commonly associated with lower urinary tract obstruction. In children it is more common in females (3:1) whereas in the aged it is more common in males. Pyelonephritis occurs in 2% of pregnant women. It is seen in diabetic patients four times more frequently than in the general population. Hypertension is noted in approximately 25% of cases.

The presenting symptoms may be highly variable. The patient with associated hypertension may seek medical care due to onset of congestive heart failure. Pyelonephritis in pregnancy may give rise to the symptoms of preeclampsia or toxemia. The syndrome of necrotizing papillitis has been recognized, particularly in association with diabetes mellitus, as a cause of hematuria and anuria. Pyelonephritis due to urea-splitting organisms may lead to the formation of calculi. Bacterial embolization, from pyelonephritis, to remote organs such as the lungs may cause the physician to overlook the primary disease.

PATHOLOGY: The introduction of the percutaneous technique for renal biopsy now permits study of the histology of the entire spectrum of pyelonephritis in the non-fatal form. The detailed pathology of pyelonephritis has been described (1-2, 5-8) in its various stages. Briefly, the earliest lesion is a focal infiltration with polymorphonuclear leukocytes in the cortex, the periglomerular lymphatics, or beneath the epithelium of the papillae. These may lead to frank abscesses. Papillary lesions cause blockage of the tubules with subsequent dilatation and formation of colloid casts. Progression of the cortical lesions lead to periglomerular fibrosis and ultimately glomerular sclerosis. The chronic fibrocytic reaction forms radial scars and their contraction may account for the atrophic kidney of chronic pyelonephritis.

PATHOGENESIS: It is generally accepted that the majority of organisms causing pyelonephritis are found in the bowel. Much of the current literature involves the question of the route of infection. There are four routes to be considered:

1) Direct spread by way of the lymphatics.
2) Ascending spread by way of the lymphatics of the ureter.
3) Spread by way of the urine through the bladder, up the ureter and into the kidney substance.
4) Hematogenous spread.

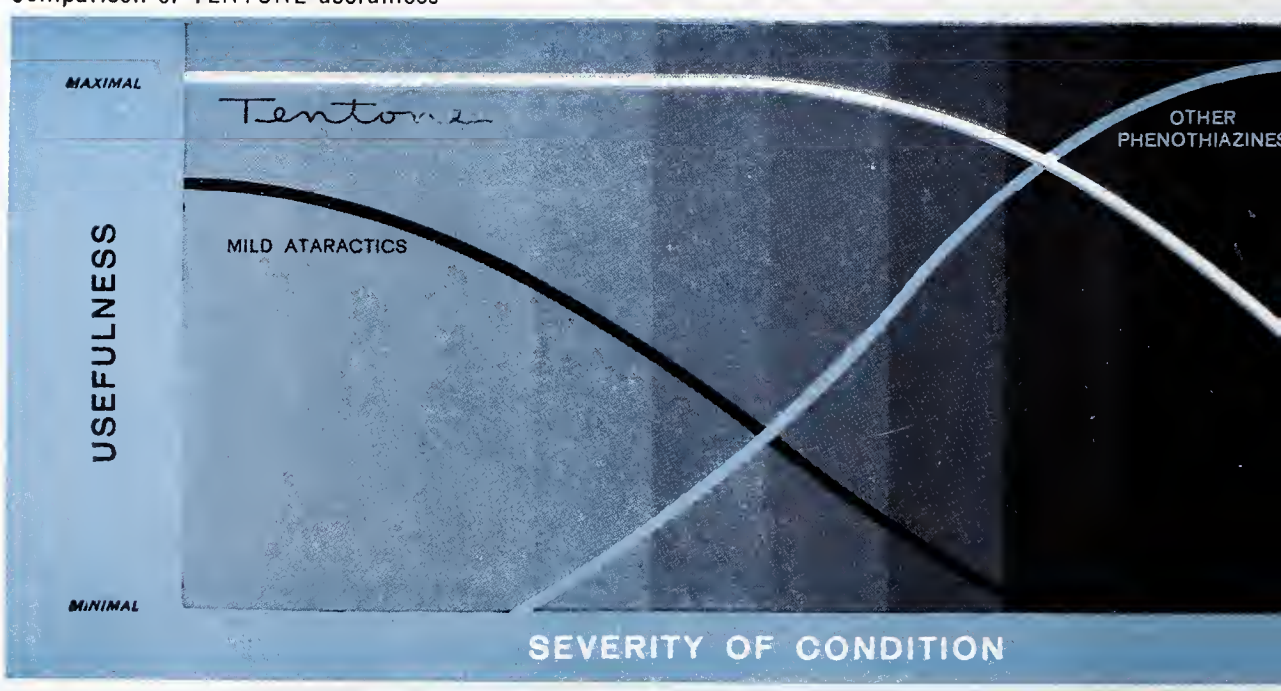
The greater incidence of pyelonephritis in female children is one of the major points in favor of ascending infection by way of the urine. This is explained by frequent soiling of the perineum and the short urethra allowing organisms to enter the bladder. In addition the frequency with which pyelonephritis is seen in the "neurogenic bladder" with stasis secondary to neurological diseases favors the ascending route. Pyelonephritis seen in association with staphlococcal bacteremia secondary to remote infection leaves little doubt that infection may occur via the blood stream. Pyelonephritis secondary to spread via the lymphatics has little support anatomically and at present is not considered a likely route. The role of the ureter and the uretero-vesical junction in relation to reflux of urine has been carefully reviewed (1, 9) and it is evident that reflux does occur and very likely is important in some cases. The latter author presents some evidence to suggest that in ascending urinary infection a ureteritis develops, leading to functional obstruction of the ureter secondary to the inflammatory changes.

That obstruction, functional or otherwise, is important is well established since it is the most common lesion found in association with pyelonephritis. This is strikingly evident in children with congenital anomalies of the urinary tract and in older men with prostatic obstruction.

EXPERIMENTAL DATA: It has been shown by several investigators (2) that intravenous injection of *E. coli* will not produce pyelonephritis in the normal ex-

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perimental animal; however, unilateral ligation of the ureter followed by intravenous inoculation of *E. coli* will result in pyelonephritis in the kidney whose ureter has been so obstructed. Guze and Beeson (10) reported a series of experiments in which one ureter was ligated with no other manipulation. In 93 animals so treated 34 became infected spontaneously, suggesting that bacteremia occurs frequently and serves as a source of infection. De Navasquez (11) introduced staphylococci intravenously into rabbits and produced staphylococcal pyelonephritis. The rabbits so infected developed pyuria, pyrexia and an increase in the blood urea. A number of the rabbits survived and returned to apparently normal health with survival for 2 or 3 years. During this period, however, a few would begin to lose weight, with a rising blood urea and would die. The urine would contain albumin but would be sterile. Examination of the kidneys revealed unequal contraction and coarse scars resembling those seen in human pyelonephritis. The histology revealed interstial fibrosis with chronic inflammatory cells and cystic distention of the tubules. Such evidence suggests that transient infections may initiate changes within the nephron which may be progressive.

In the rabbits which had recovered, and were apparently well with no albumin and sterile urine, he found he could produce an *E. coli* pyelonephritis by intravenous inoculation, a phenomenon not producible in normal animals. Examination of the kidneys revealed, in addition to the acute pyelonephritis, healed lesions of the previous staphylococcal disease. Serial sections of such kidneys revealed as a constant finding the presence of scars which interrupted the continuity of the nephrons at many different levels. The cystic dilatation De Navasquez termed "intra-renal hydronephrosis" and speculated that this lesion may render the kidney just as susceptible to infection as obstruction elsewhere in the urinary tract.

Other investigators (12, 13) have gained similar conclusions by different techniques and have shown that a traumatic lesion in the medullary portion of the kidney renders the kidney much more susceptible to infection than a similar lesion in the cortical portion. They also showed in experiments where organisms were directly inoculated into kidney substance that the medulla was much more susceptible than the cortex but that once infection was produced the end result was the same, that of a wedge-shaped scar traversing both the tubules and glomeruli of the nephrons involved.

Other investigators are studying the specific enzyme and cell wall properties of the common organisms seen in pyelonephritis and it hoped that these investigations will result in knowledge which will be of clinical value as the antibiotics and chemotherapeutic agents have been disappointing particularly in chronic pyelonephritis.

BACTERIAL DIAGNOSIS: Beeson (3) and Rhoads et al. (6) claim only about 10% cures of secondary pyelonephritis and these were in persons with no obstruction to urinary flow originally, or who had their urinary tract obstructions corrected. Many organisms were eliminated initially only to be followed with infection by a different and often more resistant organism.

It is well established that urinary tract infections may be present in the absence of pyuria and albuminuria. For this reason the pour plate technique for estimating the number of organisms per ml. of urine has been developed in an attempt to facilitate diagnosis, eliminate contaminants, and to better evaluate therapy.

In view of the evidence of asymptomatic pyelonephritis, Kass (14) recently conducted a clinical study in an attempt to establish the number of persons with asymptomatic bacilluria in the outpatient department of a large general hospital and also to evaluate the pour plate technique of culturing the urine as well as the Gram stain in estimating the number of organisms in the urine. The urine of twenty-five patients with classical symptoms of acute pyelonephritis was cultured using the pour plate method. Each urine contained more than 100,000 organisms per ml. He then cultured urines from patients who were asymptomatic so far as evidence of active urinary tract infection. Here it was found that these patients fell into two major groups. One group had bacterial counts ranging from 0-10,000

organisms and a small group had more than 100,000 organisms per ml. The counts of 0-10,000 were considered as representing the range of contamination. Using 100,000 bacteria per ml. as the dividing line it was shown that asymptomatic bacilluria occurred in 6% of 337 females and 4% of 102 males. The incidence in diabetic women was 18%, in women with cystocele 23% and in 11% of 152 pregnant females at term. Direct evidence to show that those with high counts were definitely associated with pyelonephritis was not shown, however, several factors were highly suggestive. First, those having low counts on initial culture had low counts on repeat culture and those with high counts showed little tendency to become low counts without treatment. Secondly, in the low counts coliform organisms were uncommon and rarely did the organisms occur in single species or in pure culture where as the high counts were usually due to organisms which are common pathogens of the urinary tract and were most often found in pure culture. Thirdly, a history of previous inlying catheter, instrumentation, previous infection, etc., was obtained in about 50% of the patients with asymptomatic bacilluria but in less than 10% of those without true bacilluria. Finally, some of the patients, in whom asymptomatic bacilluria was demonstrated, weeks or months later developed fever, dysuria and flank pain spontaneously.

Sanford (15) reported similar studies and conclusions but placed the dividing line between contaminants and true bacilluria at 10,000 organisms per ml. They also found that clean voided mid-stream urine collections from females correlated well with catheterized specimens as to the number of organisms per ml. All specimens in men were mid-stream collections of voided specimens. Thus, voided specimens were found satisfactory and eliminates the necessity of catheterization in both male and female. This is especially noteworthy since Kass reported that "frank dysuria and true bacilluria occurred after a single catheterization in about 2% of the female patients studied." In urines of 22 patients with inlying catheters 95% developed bacilluria within 96 hours, most of them within 24 hours. The prophylactic use of antibiotics was not effective in preventing such infections. In a later study Kass (16) applied a small amount of culture of Serratia marcesans to the periurethral epithelium of one female and two male patients with inlying catheters in the bladder. Within one to three days large numbers of this organism was recovered from the urines of these patients. It was suggested that the organisms gained entrance to the urinary tract by way of the fluid layer surrounding the catheter in the urethra. This observation seems of particular importance in the hospital environment where it is well established that highly resistant pathogens are ever present.

In an effort to evaluate the Gram stain as a screening guide Kass found that organisms were seen on smear of the uncentrifuged urines in 80% of those whose counts were 10,000 or greater, indicating the Gram stain to be a useful screening procedure. In addition, most studies reveal approximately 20 to 25% of pyelonephritis is due to Gram positive organisms, usually staphylococcus.

Since the pour plate technique is somewhat involved and a heavy burden on the usually overloaded laboratory, Hall (17) has recently reported a quantitative technique which is quite simple, and gives adequate quantitative data. Here one uses a sterile pipette to deliver 0.1 ml. of urine to the agar plate, it is then spread over the entire surface with a sterile loop or glass rod bent in the shape of an L so that the arm can be rotated evenly spreading the urine over the entire plate. After growth has occurred a section of the plate is counted and the numbers of organisms calculated per ml. of urine. In our laboratory the blood agar and E.M.B. plate have proved satisfactory and colony counts over 10,000 organisms are considered indicative of true renal tract infection in most cases.

Such plates with and without sensitivity discs are commercially available for laboratory and office use.

TREATMENT: At the present time there is still no clinical means of distinguishing "pure" cystitis from cystitis with kidney involvement. Weiss (2) was one of the early investigators to dispel the idea of "pyelitis" as a superficial infec-

tion, showing that in most instances it was truly a pyelonephritis. With these facts in mind, plus the evidence summarized above which suggests that the disease may be progressive in the asymptomatic patient, one is encouraged to use therapeutic agents with which an adequate blood level can be obtained to eradicate the organism from the kidney. In general, a bactericidal agent is the drug of choice when feasible. The tetracyclines, chloramphenicol and the sulfas are certainly useful bacteriostatic agents and adequate blood levels can be obtained with maximum dosage. The spectrum of the various sulfa drugs are essentially the same and the value of one over the other can be shown only by clinical response and by sensitivity studies of the particular organism under consideration.

The urinary antiseptics, nitrofurantoin and methenamine mandelate, no doubt are of some value in suppressing urinary tract infections, particularly in some of the chronic forms.

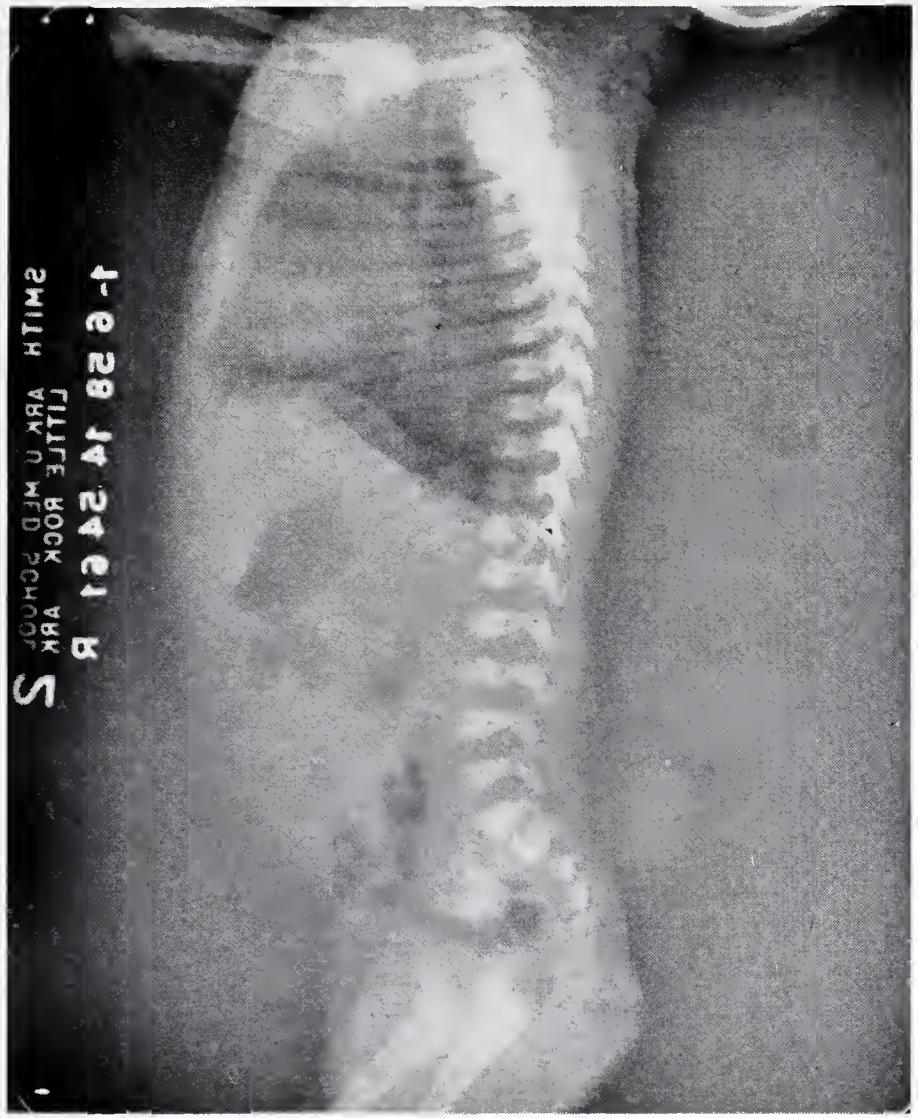
It should also be kept in mind that the acute pyelonephritis will respond with substance of symptoms with almost any of the usually useful agents but that true bacilluria may persist. One is therefore encouraged to repeat the urine culture following treatment to be certain the organism has been eliminated.

Most authorities feel the patient should be treated for a minimum of 14 days and in the chronic or recurrent form for a longer period.

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What Is Your Diagnosis?



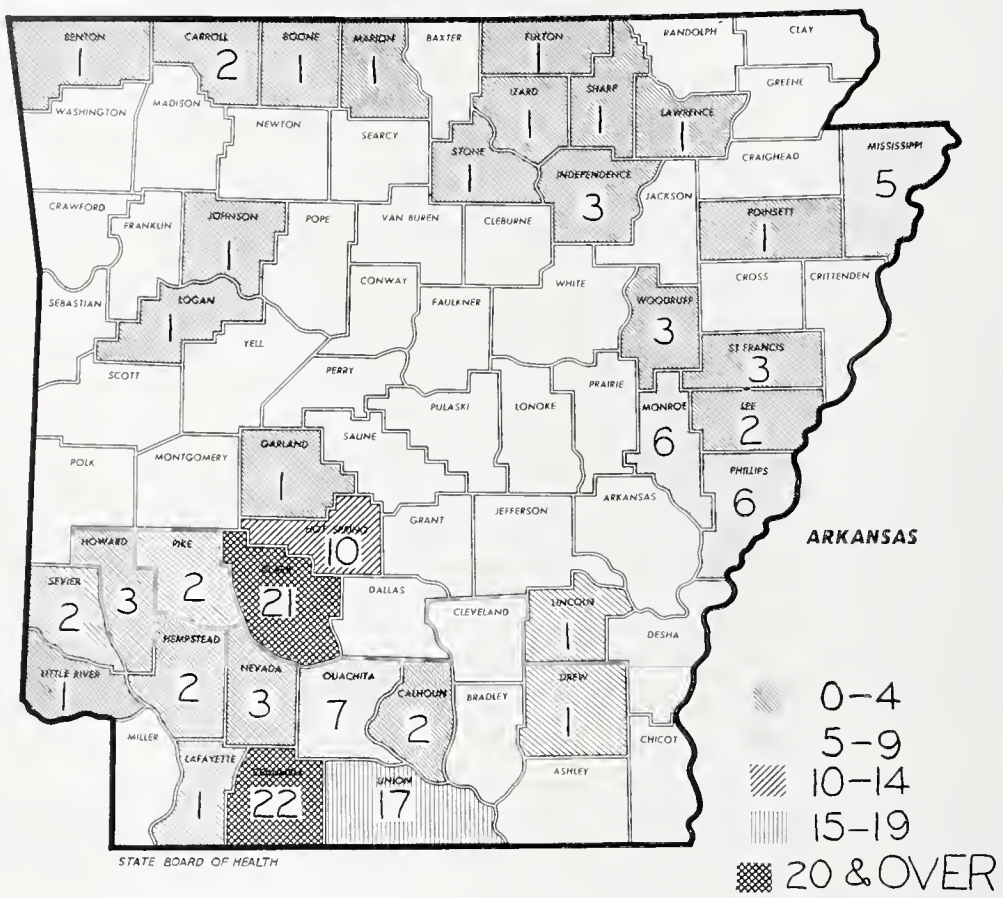


FOR ANSWER SEE PAGE 131

Arkansas Public Health at a Glance

REPORTED CASES OF ANIMAL RABIES IN ARKANSAS

JAN.1-JUNE 15,1959



Arkansas is currently experiencing an explosive outbreak of animal rabies of considerable proportions. The principal areas involved are thirteen counties in southwest Arkansas, south and west of the Ouachita River and about twelve counties in eastern and northeastern Arkansas. In addition, there are scattered cases of animal rabies in other parts of the State.

As of May 30, 1959, a total of 130 cases of animal rabies has been reported. This is more than twice as many cases for the same period of the previous year. The disease occurred in the various species of animals as follows: Foxes 68, dogs 43, cattle 11, cats 5, mules 2, and skunk 1.

The presence of so many cases of animal rabies in Arkansas is especially serious because the number of animal bites to people has, likewise, increased over the previous year. The number of animal bites reported to people as of May 30, 1959, reaches a total of 468, as compared with 349 for the same period the previous year. Many of these animal bites were followed by great mental anxiety and physical discomfort of the Pasteur treatment, because the biting animal was positive for rabies, was unvaccinated, or an unknown stray. A great many of these animal bites occurred in children, which causes great concern to parents and citizens as a whole.

The counties which have completed dog vaccination programs reported 76,997 dogs as being vaccinated against rabies since January 1, 1959. In spite of these figures, rabies in animals still exist because of inadequate stray dog control measures throughout the State, together with the existence of many unvaccinated pets. There is an urgent need for county dog wardens in the State of Arkansas in order to properly enforce rabies control measures.

In view of the above situation, it does not seem possible that the State of Arkansas will be able to complete the year 1959 without experiencing one or more cases of human rabies.

Editorial

The Liver

ALFRED KAHN, JR., M.D.

The study of liver disease has to some extent lagged behind research in organs that have a predominantly mechanical function, as the heart, the bowel, muscles, etc. The liver's function is almost completely chemical, and, as such, liver research depends largely on the development of biochemical tools and methods.

One of the great mysteries has been the van den Bergh reaction. Recent studies have helped solve this problem. As is well known, if Ehrlich's reagent (diazotized sulfanilic acid; is added to the serum of a patient with obstructive jaundice, an immediate red color reaction ensues; this is called a direct van den Bergh reaction. Serum from patients with hemolytic jaundice must be pretreated with alcohol or other chemicals before the color reaction with Ehrlich's reagent will occur. It has now been shown that bilirubin, when formed as a breakdown product from hemoglobin, in water insoluble. It is carried in the blood only by virtue of its attachment to albumen. The bilirubin molecule is rendered soluble by the attachment of glucuronide molecules in the liver. Bilirubin glucuronide, a soluble substance, gives the direct van den Bergh reaction; alcohol is necessary in the direct reaction to get unconjugated bilirubin into solution so that the diazo color reaction may occur. The implications of these studies is far reaching. If unconjugated bilirubin is not water soluble it will not appear in the urine; some types of congenital jaundice may depend on faulty conjugation of bilirubin (Sherlock, Diseases of the Liver and Biliary System).

Much has been written recently about the so-called Transaminase tests (Wroblynski). These tests are non-specific detectors of cell damage, and are not specific for certain organs. The widest current use of any Transaminase test is as a means of detecting cardiac muscle necrosis. Actually, there are two transaminase tests: serum glutamic oxalacetic, and the serum pyruvic. The former, often abbreviated to SGOT, shows a marked rise in the presence of either severe liver or cardiac cell damage; the latter shows a marked elevation in liver cell damage, but only a very minimal change in cardiac injury. The significance of this test is probably of no greater clinical value than the host of flocculation tests currently available, the most widespread of which are the thymol turbidity test and the cephalin cholesterol flocculation test; others include the zinc sulfate turbidity test, colloidal gold precipitation test, etc. One important fact to point out here is that these tests all represent liver cell damage, they do not represent the same biochemical reactions; the Transaminase tests depend on an enzymatic reaction, whereas the flocculation tests depend on the liver's release of abnormal amounts of gamma globulin, and to a certain extent they depend on an imbalance between the gamma globulin and other protein fractions.

Of concern to the clinician is the appearance of hepato-toxic drugs, as chlorpromazine, methyl testosterone, and substituted androgens, which are used to promote anabolism. All of these drugs are capable of producing jaundice by both biochemical and histological examination. They produce cholestasis which is characterized by the retention of bile in the smaller bile canaliculi; eosinophils appear in the portal areas. There is virtually no inflammatory reaction in most cases. However, in more severe cases, inflammatory cells appear and cord cell necrosis occurs. Histological differentiation from extra hepatic obstruction can be virtually impossible, and only the clinical course of the disease is the deciding factor in elucidating whether obstruction or drug reaction has occurred. True obstruction persists. Drug cholestasis improves on removal of the drug; however, deaths have been reported.

Needle biopsy of the liver has a firm place in the diagnostic armamentarium, and its wide use has led to better understanding of drug-induced cholestasis, cirrhosis and hepatitis. If obstructive jaun-

dice is strongly suspected, needle biopsy is contraindicated. Using the Vim-Silverman needle, a fairly representative sample of liver tissue can be obtained without the risk of surgery. The two most frightening complications are bleeding and puncture of a large bile duct with subsequent free drainage into the peritoneal cavity. Undetected cancer of the liver and granulomas have been detected by needle biopsy, and a suspicion of these diseases is probably an indication for needle biopsy.

A statistical survey of liver disease has established an answer to an important question raised by the vast number of cases of hepatitis seen in the military service: does hepatitis lead to cirrhosis? With the exception of a limited number of cases, representing the minutest fraction of the total number of cases of hepatitis, there have been virtually no cases of cirrhosis following hepatitis. The outlook for the patient ill with hepatitis is excellent.

Research in liver disease is steadily widening our frontiers of knowledge.

* * * *

Congratulations, Bob Robins

Arkansas can justly be proud of Dr. R. B. Robins' election as a Trustee of the American Medical Association. This distinguished honor is a fitting recognition of Dr. Robins' continued fine work in the American Medical Association. It is of interest that he comes from the smallest county medical society of any of the Officers or Trustees of the American Medical Association; this was recently pointed out as an example of democracy at the last meeting of the American Medical Association.

Congratulations, Dr. Robins.

Resolution

On the 10th day of May, 1959, Almighty God saw fit to recall Dr. James Newbill from this life. His absence leaves a distinct void among his colleagues and friends. His dynamic personality, his intense interest in his work, and his true concern regarding his friends endeared him to all who knew him. Though his state of health in the recent past had been failing, he continued his activities with the same enthusiasm and vigor. His major concern was to avoid the extra burden of worry for his family.

He was dedicated to his work in Anesthesiology, and his one driving desire was to continually escel. He was an ardent sportsman, and those who knew him well found his humor to be keen and entertaining. One of his finest qualities was his profound interest and concern for his friends.

Dr. Newbill graduated from the University of Arkansas School of Medicine in June 1941 and interned at the Santa Clara Hospital in San Jose, California. During World War II, he served with the United States Army. His preceptorship in Anesthesia was taken under his father-in-law, the late Dr. C. M. Brooks, at the Arkansas Baptist Hospital, and following this, he entered in the active practice of Anesthesiology. He was the second president of the Arkansas Society of Anesthesiology and was a member of the American Society of Anesthesiology. He was a member of this society since the 6th of May, 1946.

Though his years were short, Dr. Newbill's life was full in every respect. He was recognized for his competence in his work, for his devotion to his family, and for his keen interest in the community life about him.

It is with sorrow that the members of this Society view his farewell, but his fine qualities will not be forgotten.

It is therefore resolved that this Society extend to his devoted wife, Mrs. Blanche Newbill, and son, Brooks Newbill, and other members of his family our deepest sympathy, and that a copy of this resolution be spread upon the minutes of this Society and a copy be sent to the Arkansas Medical Journal and a copy be sent to his wife and son.

Respectfully submitted,

John E. Greutter, M. D.
Robert Watson, M. D.
Henry H. Hollenberg, M. D.

Read and approved June 9, 1959.

Medicine in the News

From the Washington Office
American Medical Association

Congress went into the final months of this session with a heavy workload of appropriation bills and foreign aid legislation to be acted upon before adjournment.

Congress must act upon the appropriation bills before adjournment to provide money for operation of the federal government during the 1960 fiscal year. Foreign-aid legislation also is generally put in the "must" category now.

With so much "must" legislation requring action and Congress hoping to adjourn by late August or maybe earlier, many bills of varying importance will be left for further consideration next year.

An upsurge in the national economy strengthened the position of the Administration and economy-minded members of the House and Senate in their opposition to big-spending bills. Supporters of a Senate-approved $465 million airport bill conceded in advance that a House-Senate conference committee would approve a figure closer to the $297 million version which the House passed.

Substantial gains in industrial production, corporate profits, employment and other key economic factors raised Administration hopes for only a small deficit, if not a balanced budget, in the fiscal year 1960 which began July 1. There also was some talk in influential quarters of a possible tax cut next year. But at this stage, it was highly speculative. And it appeared most likely that if there is one, it will be small.

During the first five months of this session, Congress completed action on only two appropriation bills. They provided funds for operation of the Treasury and Post Office Department in fiscal 1960, and additional funds for various government activities during 1959.

Early in June, the House approved, 393 to 3, a $38,848,339,000 Defense Department appropriation which included $88.8 million for care of certain dependents of military personnel in civilian hospitals. In recommending the Medicare appropriation, the House Appropriations Committee commended the Defense Department "for its response to the intent of Congress . . . that dependents of military personnel have the benefit of prompt and adequate medical treatment at all times wherever they may be."

This contrasted with the Committee's criticism about two months ago. The Committee then expressed concern at what it termed "the high costs of care for military personnel and their dependents in civilian hospitals and the high fees allowed in the program."

In another Medicare development, the Surgeon General of the Army ruled (ODMC Letter No. 7-59) that a patient under the program who has suspected or proven malignancy is acutely ill and qualifies for care. The government will pay for urgently required treatment in such cases when certified by the attending physician.

But it was made clear that payment would be based "solely on the medical requirement for immediate hospitalization." Qualifications of urgency can not be based on mental anguish, emotional attitudes or socio-economic factors.

The Defense Department rejected two proposals of the Florida Medical Association for changes in the Medicare program. The Florida Medical Association proposed that a health insurance program be provided for dependents of military personnel or that control of the Medicare program be transferred to the Department of Health, Education and Welfare.

Dr. Frank B. Berry, Assistant Secretary of Defense for Health and Medicine, said the present program could be handled best by the military service because military dependents "are a highly transient population."

Dr. F. J. L. Blasingame, Executive Vice President of the American Medical Association, suggested to the House Subcommittee on Administration of the Social Security Laws that it consider the advisability of a single Public Assistance medical program at the prerogative of individual states. There are now four such programs covering the blind, the aged, de-

pendent children, and the permanently and totally disabled.

In a letter to Rep. Burr P. Harrison (D., Va.) Chairman of the Subcommittee, Dr. Blasingame also suggested consideration of:

Whether the medical staff of the Bureau of Public Assistance is now sufficient to provide adequate counselling to states on their individual programs, and

Whether "sufficient liaison has maintained with the various professional organizations actually providing medical care.

Another suggestion of Dr. Blasingame was that a special medical advisory committee might be established in view of the fact that there are no physicians on the recently-appointed Social Security Advisory Committee.

AMA Commends Women's Efforts to Become Better Medical Assistants

The American Association of Medical Assistants, in recent action, has established a central office and employed an executive secretary to further its programs. This action was the explanation of congratulations sent to AAMA by the American Medical Association. AMA feels that the group is to be commended for their work to extend their organizational effectiveness and for continued efforts to improve medical care and medical public relations. Mrs. Stella Thurnau assumed the position of AAMA's first executive secretary.

Report on Actions of the House of Delegates American Medical Association 108th Annual Meeting June 8-12, 1959 Atlantic City

The report of the A.M.A. Commission on Medical Care Plans, relations between Medicine and osteopathy, the report of the Committee on Preparation for General Practice and the issue of compulsory Social Security coverage for self-employed physicians were among the major subjects which brought important policy actions by the House of Delegates at the American Medical Association's 108th Annual meeting held June 8-12 in Atlantic City.

Another highlight of the meeting was the appearance of President Dwight D. Eisenhower, who addressed an over-flow audience of more than 5,000 at the Tuesday night inauguration of Dr. Louis M. Orr of Orlando, Florida, as the 113th president of the A.M.A. It marked the first time that a President of the United States has addressed an A.M.A. annual or clinical meeting.

Dr. E. Vincent Askey of Los Angeles, speaker of the House of Delegates since 1955, was named president-elect for the coming year. Dr. Askey will succeed Dr. Orr as president at the association's annual meeting in June, 1960, in Miami Beach.

The 1959 Distinguished Service Award of the American Medical Association was voted to Dr. Michael E. De Bakey of Houston, Texas, chairman of the department of surgery at Baylor University College of Medicine, for his outstanding contributions in the field of cardiovascular surgery. Dr. De Bakey received the award at the Tuesday night inaugural ceremony.

Total registration through Thursday, with half a day of the meeting still remaining, had reached 28,225, including 12,921 physicians.

Eisenhower Address

President Eisenhower, speaking at the inaugural ceremony in the ballroom of Convention Hall, warned that inflation posed the greatest danger to the traditional, free enterprise practice of medicine. The cost of inflation, he said, "is not paid in dollars alone but in increasingly stagnated progress, lost opportunities, and eventually, if unchecked, in lost freedoms for the doctor and the patient." Mr. Eisenhower also expressed gratification at learning of A.M.A. leadership in the program to meet the health care needs of the aged.

Commission on Medical Care Plans

The House of Delegates received Part I of the report of the Commission on Medical Care Plans as information only and then acted upon the Commission recommendations item by item. The House adopted 36 of the recommendations without change, but reworded three which relate to miscellaneous and unclassified

plans. The changed recommendations now read as follows:

B-4. "In an effort to decrease, or at least to prevent an increase, in the overall cost of health care, study should be given to the removal of the requirement of hospital admission as the only condition under which payment of certain benefits will be made."

B-6. "Medical Care plans should be encouraged to increase their efforts to provide health education and information concerning the coverage of their subscribers."

B-16. "The American Medical Association believes that free choice of physician is the right of every individual and one which he should be free to exercise as he chooses. Each individual should be accorded the privilege to select and change his physician at will or to select his preferred system of medical care and the American Medical Association vigorously supports the right of the individual to choose between these alternatives."

In connection with free choice of physician, the House also requested the Board of Trustees to transmit to all constituent medical associations the "far-reaching significance" of Recommendation A-7, which says:

" 'Free choice of physician' is an important factor in the provision of good medical care. In order that the principle of 'free choice of physician' be maintained



ARKANSAS MEDICAL SOCIETY BREAKFAST
June 8, 1959, Atlantic City, N. J.

(To left of lectern Dr. James M. Kolb, Clarksville, Arkansas and Dr. R. B. Robins, Camden, Arkansas. Second to right of lectern, Congressman Dale Alford, the speaker of the occasion. Arkansans shown in front of speakers' table are Dr. J. H. McCurry, Cash, Arkansas; Mr. Paul Schaefer, Ft. Smith, Ark.; Dr. and Mrs. Sam Jameson, El Dorado, Ark.; Mr. and Mrs. Tom Clark, Arkadelphia, Ark.; Dr. L. H. McDaniel, Tyronza, Ark.; and Dr. Luther Longino, formerly of Magnolia, Ark.—Many other Arkansans were present, but are not shown in this photo.)

The Arkansas breakfast June 8, 1959, in the Rose Room of the Traymore Hotel in Atlantic City during the annual American Medical Association convention was attended by 300 people.

It was attended by all the officers and members of the House of Delegates of the American Medical Association. The officers of the AMA are seated at the head table. Congressman Dale Alford of Arkansas gave a most interesting talk on the "Dangers of Socialism."

Dr. R. B. Robins of Camden, Arkansas was elected to a five year term on the nine-member Board of Trustees of the American Medical Association at this convention.

This is the second annual Arkansas Medical Society breakfast to be given on the opening morning of the AMA meeting. This feature has proved to be a very popular event and it is hoped that it can be made an annual event.

and be fully implemented, the medical profession should discharge more vigorously its self-imposed responsibility for assuring the competency of physicians' services and their provision at a cost which people can afford."

The House also strongly endorsed Recommendation B-11, which declares that "Those who receive medical care benefits as a result of collective bargaining should have the widest possible choice from among medical care plans for the provision of such care."

Many of the Commission recommendations urged increased activity by state and county medical societies and the American Medical Association in such fields as continuing study and liaison, closer attention to legal and legislative factors, and the development of guides for the relationship between the medical profession and the various types of third parties. To carry out three of the recommendations involving A.M.A. activities, the House also approved a seven-point program which it requested the Board of Trustees to transmit to the Division of Socio-Economic activities for immediate attention.

Medicine and Osteopathy

In considering a special report of the Judicial Council on the subject of osteopothy, the House adopted the following policy statement regarding interprofessional relations:

"(A) All voluntary professional associations between doctors of medicine and those who practice a system of healing not based on scientific principles are unethical.

"(B) Enactment of medical practice acts requiring all who practice as physicians and surgeons to meet the same qualifications, take the same examinations and graduate from schools approved by the same agency should be encouraged by the constituent associations.

"(C) It shall not be considered contrary to the Principles of Medical Ethics for doctors of medicine to teach students in an osteopathic college which is in the process of being converted into an approved medical school under the supervision of the A.M.A. Council on Medical Education and Hospitals.

"(D) A liaison committee be appointed by the Board of Trustees of the American Medical Association to meet with representatives of the American Osteopathic Association, if mutually agreeable, to consider problems of common concern including inter-professional relationships on a national level."

In another action concerning osteopathy, the House recommended that the American Medical Association representatives on the Joint Commission Accreditation of Hospitals suggest to the Joint Commission that they inspect upon request and consider for accreditation without prejudice those hospitals required by law to admit osteopathic physicians to their staff.

Preparation for General Practice

The House approved and commended the final report of the Committee on Preparation for General Practice, which proposes a new two-year intership program for medical school graduates planning to become family physicians. To avoid unnecessary confusion, the House deleted only on sentence which read, "Indeed, the committee believes that the one year intership actually encourages inadequate preparation for general practice." The Committee on Preparation for General Practice included representatives from the A.M.A. Council on Medical Education and Hospitals, the American Academy of General Practice and the Association of American Medical Colleges.

The suggested program would include a basic minimum of 18 months hospital training in the diagnostic, therapeutic, psychiatric, preventive and rehabilitative aspects of medicine and pediatrics in a very broad sense, including care of the newborn. A physician then could elect to spend the remaining six months for additional training in other segments of the program. The committee stated, however, that participants who plan to practice obstetrics would be expected to spend at least four months of the elective period in obstetrical training.

The report declared that "the graduate program of two years in preparation for family practice should be planned and implemented as a unified whole" with a maximum continuity of assignment in specific services. The program also calls for ade-

quate experience in outpatient care and emergency room service.

Social Security

In considering five resolutions on the subject of compulsory Social Security coverage for self-employed physicians, the House disapproved of four and adopted one reaffirming its opposition to the compulsory inclusion of physicians. In so doing, the delegates expressed concern over the possible effects that a change of policy might have on the Association's entire legislative program, particularly with respect to the Forand Bill.

The House also recognized "the apparent growing demand by physicians for economic security" and requested the Board of Trustees to investigate the possibilities of developing group insurance and retirement plans which could be made available to Association members. It accepted a reference committee suggestion "that the American Medical Association continue and expand its educational program to inform its members of the economic, social and moral advantages of economic security obtained within the framework of our free enterprise system rather than through the mechanisms of governmental Social Security."

Miscellaneous Actions

In dealing with a wide variety of other subjects, the House also: Urged all physicians to participate more fully in community activities and **socio-economic matters** in their own communities but agreed that no change should be made at this time in Article II of the Constitution, which states Association objectives;

Approved in principle the aims and objectives of the President's Council on **Youth Fitness** and Citizens Advisory Committee on the Fitness of American Youth;

Accepted a Board of Trustees recommendation that the **1962 Annual Meeting** be held in Chicago;

Expressed heartfelt thanks to the Committee on **Amphetamines** and Athletes, which has completed its assignment;

Requested the Board of Trustees to study the problems and possibilities of establishing an A.M.A.-sponsored **medical scholarship** and/or loan program;

Approved the inclusion of Today's Health as a benefit of dues-paying membership and urged members to make it available to their patients;

Recommended that state medical societies, where advisable, initiate legislative efforts to eliminate **cancer quackery;**

Received a progress reported indicating "phenomenal progress" in the field of health insurance coverage for **the aged** since the Minneapolis meeting last December;

Gave a rising vote of thanks to **Dr. Joseph D. McCarthy,** who finished his term as chairman of the Council on Medical Service;

Reaffirmed its full support of the Educational Council for **Foreign Medical Graduates;**

Endorsed the purposes outlined in the initial report of the **Medical Disciplinary Committee;**

Urged every A.M.A. member to give a substantial gift to the **medical schools** through the American Medical Education Foundation; and

Expressed appreciation for the outstanding **disaster medicine** program presented by the United States Army Medical Service on June 6, 1959, in Atlantic City.

Answer to What Is Your Diagnosis?

ANATOMY AND DIAGNOSIS: Lumbar Spine—Meningomyelocele.

Age, 1 day; race, C; sex, M.

CLINICAL DATA: Delivered at home unattended to a mother with no prenatal care. The patient moved both lower extremities well.

LAB DATA: Hemoglobin 19 gm. WBC 19,700.

SURGERY: Excision meningocele.

PATHOLOGY: Meningomyelocele with acute inflammatory reaction.

X-RAY FEATURES: Large mass on the back projected over the pelvis.

University of Arkansas Medical Center Department of Radiology.

ANNOUNCEMENTS

International College of Surgeons

The Mid-Atlantic Meeting of the International College of Surgeons will be held at the Homestead Hotel, Hot Springs, Virginia, on November 16, 17 and 18th. The profession is cordially invited to attend.

Annual Symposium on Fundamental Cancer Research

The Fourhteenth Annual Symposium on Fundamental Cancer Research, "Cell Physiology of Neoplasia", will be held February 25, 26, and 27, 1960, at the University of Texas M. D. Anderson Hospital and Tumor Institute.

The American Institute of Ultrasonics in Medicine

The American Institute of Ultrasonics in Medicine will hold its Annual Meeting on September 2, 1959 at the Leamington Hotel, Minneapolis, Minnesota. The Guest speaker at the luncheon meeting will be Russell Meyers, M. D., Professor of Surgery and Chairman, Division of Neurosurgery, State University of Iowa Hospitals and College of Medicine. For further information contact John H. Aldes, M. D., Secretary, 4833 Fountain Avenue, Los Angeles 29, California.

American Rhineologic Society

The Fifth Annual Meeting of the American Rhinologic Society is scheduled for Saturday, October 10, 1959, at the Belmont Hotel, Chicago, Illinois. Prior to the meeting a Surgical Seminar will be held October 7, 8, and 9 at the Illinois Masonic Hospital in Chicago.

Seminar on Hypnosis

The Arkansas Academy of General Practice is sponsoring a three-day Seminar on Hypnosis on November 6, 7 and 8, 1958, at the Arlington Hotel in Hot Springs. Twenty hours credit in Category One will be allowed for General Practitioners who attend this seminar.

The American Society of Clinical Hypnosis

The American Society of Clinical Hypnosis is sponsoring an Advanced Seminar on Hypnosis in Chicago on October 7 and 8, 1959. The Society is having its Second Annual Meeting on October 9, 10 and 11.

Obituary

Dr. H. M. Kitchens, 72, retired physician at Waldo, Arkansas, died May 18, 1959. Dr. Kitchens received his medical education at the University of Tennessee Medical School, and after being graduated in 1914 he practiced in Stamps, Arkansas, until he moved to Waldo in 1916. Dr. Kitchens was a member of the Church of Christ in Waldo, and the Arkansas Medical Society.

Survivors include two sons, Herschel M. Kitchens, Jr., of Waldo, and Dr. Howard H. Kitchens of Memphis; three grandchildren; seven brothers, Wade H. Kitchens of Magnolia, Dr. Walter L. Kitchens of Port Arthur, Texas, George T. Kitchens of Waldo, Homer Kitchens of Bradley Beach, New Jersey, Dr. Chester E. Kitchens of Texarkana, Clyde B. Kitchens of Homer, Louisiana, and Dr. Bert Kitchens of Lafayette, Georgia; and three sisters, Mrs. H. J. Smith, of Memphis, Mrs. Lula Babb of Dallas, Texas, and Mrs. Ewell Jenkins of Rotan, Texas.

Dr. Robert Lee Dawson, aged 79, retired Bee Branch physician, died May 22, 1959, in a Little Rock hospital. Dr. Dawson was born in Greenbrier, Arkansas, and spent his childhood in Conway and Faulkner Counties. He was a graduate of the Arkansas Medical School, and was a past president of the Faulkner County Medical Society. He was a member of the Church of Christ, and the Arkansas Medical Society, and was a Mason. In 1953 he celebrated his 50th anniversary as a practicing physician, and retired the following year.

Survivors include his widow, Mrs. Grace Ayers Dawson; a son, L. B. Dawson of Bee Branch; two daughters, Miss Josephine Dawson and Mrs. Fred Lawrence; two brothers, E. V. Dawson of Muskogee, Oklahoma, and Eber Dawson of Tulsa, Oklahoma; and five grandchildren.

PERSONALS AND NEWS ITEMS

Arkansas doctors attending the AMA convention at Atlantic City in June were: James W. Branch, Hope; Eva F. Dodge, Little Rock; Philip P. Ellis, Little Rock; Robert S. Ely, Little Rock; Davis W. Goldstein, Fort Smith; L. M. Henry, Fort Smith; Sam Jameson, El Dorado; Fount Richardson, Fayetteville; Euclid M. Smith, Hot Springs; James M. Kolb, Clarksville; Wm. Paul Gray, Batesville; Theodore Panos, Little Rock; Guy Shrigley, Clarksville; J. H. McCurry, Cash; Thomas Dale Alford, Little Rock; L. H. McDaniel, Tyronza; J. Kenneth Thompson, Fort Smith; Waldo Regnier, Crossett; R. B. Robins, Camden; Joseph D. Calhoun, Little Rock.

Dr. Anthony Thomas DePalma of Fayetteville was elected president of the Northwest Arkansas Mental Health Association at its May meeting.

Dr. Joe Norton, Little Rock radiologist, was guest speaker at the Conway Rotary Club meeting held on June 10.

A resident physician at the University of Arkansas Medical Center, Dr. Wayne B. Glenn, has won a $1,000 award, one of 20 presented to young resident physicians of "unusual promise" throughout the nation by Mead Johnson & Company of Evansville, Ind. The American Academy of General Practice selects the recipients.

Monticello City Park, Monticello, Arkansas, was the setting for a fish fry on Saturday night, June 13. Doctors, hospital and office personnel and their families of the city enjoyed the affair. Approximately fifty persons attended.

Dr. J. H. Scroggin, a practitioner for 50 years, opened a new clinic at Plumerville on June 6. Dr. Scroggin was recently elected to the American Board of Abdominal Surgeons for work in eliminating retractors and packing in operations.

Announcement is made by Dr. Wayne Stanfield of the opening of a new office at 1513 Malcolm Avenue in Newport, Arkansas.

Dr. W. R. Meredith of Pine Bluff was recently certified as a Diplomate of the American Board of Surgery.

Dr. John S. Griffin, of the Collom & Carney Clinic in Texarkana, was recently notified of his acceptance as an associate in the American College of Physicians.

Dr. William H. Handley, Jr., has returned from a tour of duty with the Air Force and has established his practice at 1201 Cherry Street, Pine Bluff.

Observing 60 years of medical practice, Dr. and Mrs. T. E. Rhine, of Thornton, entertained with an open house on Sunday, May 17. Approximately 600 guests called during the afternoon.

Dr. T. Duel Brown was recently notified of his acceptance as a Fellow in the American Society of Clinical Hypnosis. Dr. Brown is a charter member of the Arkansas Society of Clinical Hypnosis, and is the delegate of the Arkansas Society to the national organization.

Dr. Gilbert O. Dean of Little Rock spent the week of June 7 through 13 vacationing and attending the high school graduation of his son, Gibie, in Ann Arbor, Michigan.

Dr. James Sawyer and Dr. John Miller, Camden physician and former missionary to China, left by plane Saturday, May 30, for a ten day medical service tour of the San Blas Islands off the cost of Panama. There they will hold medical and dental clinics for patients on the primitive island to render such services as they can during their stay. The islands have no trained medical personel to administer to their needs.

Piggott, Arkansas recently welcomed Dr. John L. Hudson as general practitioner and the fourth member of the Piggott Hospital staff. Dr. Hudson completed the University of Arkansas Medical School in 1955 and served as Medical officer aboard the U. S. S. Taconic.

Proceedings of Societies

The First District Medical Society held its 113th semi-annual meeting at the Jonesboro Country Club, beginning at 2 p. m., May 28th. Dr. A. J. Forestiere, president, presided.

The scientific program was furnished by Dr. Philip P. Ellis of Little Rock, who spoke on "Eye Diseases"; Dr. Alan Cazort, on "Steroids in Allergy"; Dr. Gwin Robbins of Memphis, speaking on "Recent Advances in Thoracic Disorders"; and Dr. Orrin Davidson, "Office Procedures in Gynecology." The printed program included a plea by the secretary, J. H. McCurry, for the members to contribute to the American Medical Education Foundation.

Dr. James Kolb, President of the Arkansas Medical Society, Dr. T. Duel Brown and Dr. Gilbert Dean, Little Rock, and Mr. Paul Schaefer, were guests.

Members of the Phillips County Medical Society and their wives met for dinner and business meeting at the Helena Country Club Wednesday, May 27. Dr. Phil Schrier of Memphis, head of the department of Obstetrics and Gynecology at the University of Tennessee, presented a scientific film.

HIP Committee Meeting

Clarification of current practice being employed by weekly indemnity insurance was made at the HIP Committee meeting May 31.

All physicians who fill out weekly indemnity forms (small blue, yellow and white forms of Dixie, Southern National, Reliable, etc.) should note that these companies are using a *standard form.* Some of the companies are at the present time supplying their clients with these new forms and with the depletion of supplies on hand, all companies will begin using these forms. Another stride the insurance representative have accomplished is the institution of policy whereby *an initial form,* a monthly supplemental form and a final form can replace the filling out of *weekly forms* for *continuing or lengthy illness.*

Further clarification brought out at the meeting. The date of the disability does not begin with the first date seen by the M.D., but is the date of onset of symptoms and the initial form listing the date of onset will be adjusted by the insurance company on the first claim.

Every M.D. in Arkansas will heartily agree this is a great stride for the insurance industry and will cut down on our work load for paper work. *One* thing we M.D.'s *must not do,* to avoid scrapping of these advances, is using such terminology as "see previous report" or "undetermined or unknown" or rendering incomplete forms.

The insurance companies have worked with the M.D.'s; now we can reciprocate by giving them forms which can be used in payment of claims properly. Any trouble with these new forms or policies should be reported to M.D. members on the HIP Committee.

SAM JAMESON, M.D.
Chairman, HIP Committee

The Ninth Councilor District Medical Society held a meeting on June 18 at Springdale. Following the social hour and dinner, the Society was addressed by the Honorable Bruce Bennett, Attorney General of the State of Arkansas. The scientific portion of the program consisted of "Economics of Rehabilitation" by Mr. John Ed Whitaker of Harrison, and "Radical Surgery for Recurrent Carcinoma of the Uterus " by Drs. Charles R. Henry and Merlin J. Kilbury, Jr., of Little Rock.

The following officers were unanimously elected for the ensuing year: Dr. Friedman Sisco, president; Dr. David M. Russell, vice president; and Dr. Joe Bill Hall, Secretary.

Contributors to the American Medical Education Foundation from the state of Arkansas — May 1959.

Dr. E. J. Caffery, Jonesboro	$10.00
Dr. J. C. Faris, Jonesboro	10.00
Dr. Joe B. Hall, Fayetteville	5.00
Dr. Howell E. Leming, Fayetteville	2.50
Dr. J. J. Monfort, Batesville	15.00

Dr. W. H. Moreland, Tyronza	2.00
Dr. Thomas G. Price, Wynne	5.00
Mrs. J. A. Norton, Little Rock	25.00
Mrs. H. B. Thompson, Fort Smith	10.00
Mrs. D. D. Wallace, Little Rock	5.00
Ouachita County Medical Auxiliary, Camden	5.00
	$94.50

New Members . . .

The Woodruff County Medical Society reported a new member in January. He is **Dr. Victor J. Ferrari,** who is in general practice in Augusta. A native of Fort Smith, Arkansas, Dr. Ferrari received his preliminary education at the University of Arkansas at Fayetteville, his M.D. degree was received from the University of Arkansas School of Medicine in 1957, and he interned at the University Hospital, Little Rock, Arkansas.

A new member of the Pulaski County Medical Society is **Dr. Norman F. Westermann.** Dr. Westermann is an anesthesiologist at the University of Arkansas Medical Center. A native of Gerald, Missouri, Dr. Westermann received his preliminary education at Henderson State Teacher's College and was graduated from the University of Arkansas Medical School in 1956. He has practiced at the above mentioned address for one year. Prior to entering residency, Dr. Westermann was with the V.A. Hospital in North Little Rock.

A new member of the Union County Medical Society is **Dr. Joseph L. Ellis** of Hampton, Arkansas. Dr. Ellis was born in Thornton, Arkansas, and received his preliminary education from the State Teachers College at Arkadelphia. His M.D. degree was received from the University of Arkansas School of Medicine at Little Rock, Arkansas, July 1955. He is a general practitioner and anesthesiologist.

Dr. James E. Wise, Jr. has been accepted for membership in the Phillips County Medical Society. A native of Hughes, Arkansas, he attended the Arkansas State College, Jonesboro, Arkansas, and received his M.D. degree from the University of Tennessee College of Medicine in 1957. Dr. Wise is in general practice at Malvern.

The Mississippi County Medical Society announces that **Dr. C. R. Cole** has been added to its roster of members. A native of Memphis, Tennessee, he attended high school at Parkin, Arkansas, and received his M.D. degree from the Tulane University Medical School at New Orleans, Louisiana, in 1957. Dr. Cole's office is located at 2004 West Main in Blytheville, Arkansas.

Dr. Nathan L. Poff has been accepted for membership in the Arkansas County Medical Society. A native of McGehee, Arkansas, Dr. Poff received his preliminary education at A and M College at Monticello, Arkansas, and was graduated from the University of Arkansas School of Medicine in 1955. He served in the United States Navy Medical Corps from 1955 to 1958 and practiced in Missouri before associating with Dr. H. K. Baldridge at Heber Springs. Dr. Poff is a general practitioner.

A new member of the Pulaski County Medical Society is **Dr. Edwin E. Blalack.** Dr. Blalack was born in Memphis and attended schools in Whitehaven, Tennessee. His M.D. degree was received from the University of Tennessee College of Medicine in 1952. Dr. Blalack is an associate radiologist at the Arkansas Baptist Hospital in Little Rock.

Dr. Morris M. Henry is a new member of the Sebastian County Medical Society. His preliminary education was obtained at Fort Smith and at Hendrix College, Conway, Arkansas. His M.D. degree was received from the University of Tennessee College of Medicine at Memphis, in 1955. Dr. Henry has recently completed a residency in ophthalmology at the Massachusetts Eye and Ear infirmary and returned to Fort Smith to practice with his parents, Drs. Louise and L. M. Henry, 602 Garrison Avenue.

The following physicians were reported as new members of the Jefferson County Medical Society:

Dr. Virgil Bryan Perry, 1019 Cherry Street, Pine Bluff. A native of Fort Smith, Dr. Perry received his preliminary education from the University of Arkansas and was graduated from the University of Arkansas School of Medicine in 1956. He opened his office at the above address after completing an internship at Arkansas Baptist Hospital in June.

Dr. James W. Campbell, a native of Williford, Arkansas, has opened his office at Altheimer. He attended the University of Arkansas at Fayetteville and received his M.D. degree from tthe University of Arkansas Medical School at Little Rock in 1955. Prior to locating in Altheimer, he completed two years of service in the United States Army.

Dr. James Arthur Brown, a general practitioner, has opened an office in the Cleveland County Memorial Hospital at Rison. He is a native of Fort Smith and was graduated from the University of Arkansas School of Medicine in 1956.

Dr. Barbara A. Barksdale, has also entered general practice with offices in the Cleveland County Memorial Hospital at Rison. She was born in Little Rock and received her preliminary education from the Hendrix College in Conway. Dr. Barksdale received her M.D. degree from the University of Arkansas School of Medicine in 1956 and completed a two-year general practice residency at the University Medical Center before locating in Rison.

Book Reviews

DIAGNOSTIC MEDICAL PARASITOLOGY. Edward K. Markell, and Marietta Voge. W. B. Saunders Company. Philadelphia and London. Pp. 276. 1958.

There is perhaps no field in medicine which is more neglected by the practicing physician than that of parasitology. Markell and Voge have written a very compact diagnostic manual of medical parasitology. The reviewer would have preferred the inclusion of therapy in this manual. There are special chapters on diagnostic methods, stains and common procedures. The book is recommended as a brief, diagnostic manual on parasitology to medical students and the practicing physician.

EMERGENCY TREATMENT AND MANAGEMENT: 2nd Edition, Thomas Flint, Jr., Director, Division of Industrial Relations, Permanente Medical Group, Oakland, Calif. 1958. Illustrated. Pp. 539. W. B. Saunders, Philadelphia. $8.00.

This book, like the previous edition, is a most excellent reference for quick information on the handling and treatment of emergencies. All subjects are presented in alphabetical order in the book, and the index is complete and permits rapid "looking-up" of any subject. The section on "poisoning" is very complete and permits quick and easy reference to most types of acute poisoning encountered.

The book can be well recommended for regular use and reference in the office of any doctor, especially those in general practice; and for ready use and reference in hospital emergency rooms.

PEDIATRIC NEUROLOGY. Stanley S. Lamm, M.D., Clinical Professor of Pediatrics, State Univ. of New York, College of Medicine at New York City, Neurological Consultant, Pediatric Dept., Kings County Hospital, Brooklyn, N.Y., Director, Cerebral Palsy Clinic, Long Island College Hospital, Brooklyn, N. Y., formerly Instructor in Neurology, Long Island College of Medicine, Brooklyn, N.Y. Illustrated, Pp. 482, 1959. Landsberger Medical Books, New York, N. Y. $12.90.

Pediatrics was originally a specialty all on its own. In recent years the general field of Pediatrics has been further broken down into Pediatric Surgery, Pediatric Neurology, Pediatric X-Ray, etc. Lamm's textbook of Pediatric Neurology is an interesting, well-written book. Most of the Articles in it are divided up into a brief resume of the clinical picture, the diagnosis, prognosis, and therapy; this is not an unconventional handling; it tends to make the book a little easier to use as a reference because of this standardization. The material seems up to date in most instances, the article, for example, on kernicterus does not bring up a discussion of the types of blood bilirubin, and this might well have been included. In general, however, the material is quite up to date. References are provided in the body of the book and they are up to date.

This book is recommended as an easy to read reference on Pediatric Neurology for the medical student, general physician, and pediatrician.

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Thrombo-Embolism, a Dangerous Condition

J. N. COMPTON, M.D., F.A.C.P.*

INCIDENCE

In spite of all the publicity given pulmonary embolism, phlebo-thrombosis, and thrombo-phlebitis in the literature, these conditions still are not recognized and diagnosed as frequently as they should be. The diagnosis of pneumonia and coronary occlusion is made much too often when pulmonary embolism is present. In an 18 month analysis of pulmonary disease at the 350-bed Graduate Hospital in Philadelphia, by Israel and Goldstein, from August 1, 1955, to January 31, 1957, pulmonary embolism was the most frequent cause of pulmonary disease. The incidence was higher than that of both pneumonia and bronchogenic carcinoma. (1) The implication is that the incidence is about as high in other general hospitals, but it is not recognized as often. A review of many records at our St. Vincent's Infirmary and the Arkansas Baptist Hospital, Little Rock, Arkansas, would indicate that this is true in these hospitals. Also, it is not generally recognized by internists that pulmonary embolism is a common complication of medical conditions, especially heart disease, and that emboli not only originate in the heart but frequently from the veins of the legs due to stasis of blood there. (2, 3) Pulmonary embolism occurs in about 1.2% of all medical admissions, and .6% of all surgical admissions in a general hospital. (1) Routine autopsies done in America and England reveal pulmonary embolism to be present in about 10% of patients dying in a general hospital. (4, 5) Massive pulmonary embolism was directly responsible for death in 4% of these, while in the other 6%, pulmonary embolism was a contributing or incidental factor. In homes for the indigent or aged, pulmonary embolism was found to be present in 25% of the autopsies. (6) A great deal depended on how thoroughly the pathologist looked for the condition. Pulmonary embolism then is found frequently by the pathologist but relatively infrequently by the clinician before death. (7) It is estimated that the diagnosis is made in only 20 to 50% of the cases before death, depending on the alertness of the hospital staff to the frequency of pulmonary embolism. The diagnosis is often quite difficult or impossible before death, but it can be made in many cases if the clinician is well informed and on the alert for the condition. It is estimated that pulmonary embolism is responsible for 34,000 deaths in the nation each year, a death rate far greater than that from tuberculosis. (7) Pulmonary embolism therefore is not rare.

It has been shown that the incidence of pulmonary embolism is highest after the age of 40, but it is not rare below this age, since about 25% occurs between 21 and 40 years. (1) With the increased span of life, our hospital population is getting older, more operations are done on old people, more cancers are found, and therefore the incidence of pulmonary embolism probably is increasing, since it is more frequent in the aged and with cancer.

PATHOLOGY

It might be well here to differentiate between the terms pulmonary embolism, infarction, and thrombosis, since these

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are rather confusing. Pulmonary embolism is the lodgement of a clot, or other foreign material, in a pulmonary arterial vessel. Pulmonary infarction is the hemorrhagic necrosis of a part of the lung parenchyma due to interruption of its blood supply, usually as a result of embolism. Pulmonary thrombosis is the formation of a thrombus *in situ* in any pulmonary blood vessel. (8) Pulmonary infarction and thrombosis, therefore, are not the same thing. Also, pulmonary embolism often occurs without pulmonary infarction. (9) Infarction may not occur when the embolus is very small, or when it is very massive, and causes death by shock before it has time to form. When embolism does cause infarction, the following pathological changes occur in the involved lung, depending on the size of the infarct: ischemia, hemorrhage, necrosis, plate-like atelectasis, and, finally, healing by fibroses and absorption if the patient gets well. The pathological process may stop at any stage, depending on the size of the embolus and the amount of collateral circulation from the bronchial arterial system. (9)

VENOUS THROMBOSIS

Most pulmonary emboli originate in the deep veins of the legs, especially the calf veins. Excluding the heart, it has been estimated that as high as 85% of emboli arise from the lower extremities, and 5% each from the pelvic, arm, and neck veins. (7) It is well known that phlebo-thrombosis is a more common cause of embolism than thrombo-phlebitis, accounting for 80%, while thrombo-phlebitis accounts for only 20%. Of course, inflammation in the intima of the vein in thrombo-phlebitis causes the clot to adhere to the wall and it is not easily separated. Phlebo-thrombosis frequently occurs insidiously without clinical symptoms and pulmonary embolism may be the first sign. Careful examination of the legs may reveal little or no tenderness in phlebo-thrombosis, but in spite of this, pulmonary embolism should be suspected if suspicious chest symptoms are present. Fifty per cent of pulmonary embolism occurs without leg tenderness. (7) Marked tenderness over the calf muscles and a positive Homan's sign is more apt to mean thrombo-phlebitis, but the dividing line between the two vein conditions may not be clear cut. Many men believe that phlebo-thrombosis and thrombo-phlebitis are different degrees of the same pathological process, and that the primary cause of each is abnormal thrombus formation in the vein, with secondary irritation of the vein. (10) As a matter of fact, ¼ to ⅓ of patients with frank thrombo-phlebitis have also associated phlebo-thrombosis in the same venous system, or in the contra-lateral venous system. (21) *Superficial* vein thrombo-phlebitis rarely causes pulmonary embolism if it is not also associated with deep vein thrombosis. (11)

Three factors predispose to phlebo-thrombosis or thrombo-phlebitis:

1. Venous stasis associated with prolonged bed rest or external pressure.
2. Local injury of the endothelium by stretching, contusions, chemicals or bacteria.
3. Thrombophilia or changes in the circulating blood which favor coagulation. (12) The last is not thoroughly understood, but may account for thrombosis in a vein and pulmonary embolism, in spite of early ambulation and leg exercises, even in such minor surgery as a cataract removal. Some patients seem to have a clotting tendency from unknown causes. (10, 21, 22) A special test for this tendency would be invaluable (21, 22)

Venous thrombosis frequently follows injuries to the legs. These injuries do not have to be severe. Numerous cases have been reported following strain to the calf muscles, such as twisting the leg and "step up" exercises to estimate physical fitness. (13) Since these injuries usually involve the deep veins, they are an especially treacherous and dangerous cause of pulmonary embolism.

PULMONARY EMBOLISM

Pulmonary embolism may occur at any time during the first three weeks, or longer if the patient is kept in bed. However, it is most likely to occur during the second week. Following operations, childbirth, or injury, a chest complication occurring during the first three days is very apt to be atelectasis, or atelectasis and/or pneumonitis. A chest complica-

tion occurring during the second week is most likely to be pulmonary embolism. (11)

Pulmonary embolism is usually thought of as a complication of post-operative surgery, probably because it is most dramatic at this time, killing or complicating a convalescent patient. However, it is twice as frequent with medical conditions, especially heart disease, blood dyscrasias, anemia, carcinoma, and polycythemia vera. (1) A sudden change in a patient with congestive heart failure might be due to a pulmonary embolism arising from a phlebothrombosis in the veins of the calf of the leg. The stasis of blood in these veins along with pressure from bed rest is very conducive to thrombosis. The symptoms might be very vague and atypical, such as increased dyspnea, rales, tachycardia and fever.

The symptoms of pulmonary embolism vary somewhat, depending on whether the embolism is small, medium, or large. (9) Small emboli may cause only tachycardia, dyspnea, fever or slight cough, making the diagnosis difficult to recognize. Large emboli may cause sudden death before the physician has time to diagnose the case. Fortunately, the ratio of non-fatal to fatal emboli is 8:1, meaning that most cases fall in the small to medium size class. (1) Therefore in these classes, in order to prevent further emboli, it is imperative that the physician recognize the condition. Since the veins of the legs are the commonest source of emboli, these should be carefully examined. A sudden increase in the circumference of the leg may be very suggestive. Calf tenderness and a positive Homan's sign usually mean deep vein thrombosis.

PULMONARY INFARCTION

In post-operative and medical cases mentioned above, especially in the second week, the physician should have a high degree of suspicion that pulmonary infarction is a likely cause of the chest condition. Sudden pleuritic pain is by far the commonest symptom of infarction. (11) Cough may or may not be present. Hemoptysis of a small amount of bright red blood occurs in many cases, but by no means in all. Tachycardia is nearly always present. Dyspnea may or may not be present. A temperature usually not over 101° may ensue. Physical examination may reveal slight impairment of resonance on the affected side, and a localized patch of moist rales. A friction rub may or may not be heard. When present, it may be transient. In larger infarctions, if the patient survives the initial attack, the pain is apt to be more substernal and simulates myocardial infarction. Various degrees of shock may be present.

The diagnosis of pulmonary infarction is presumptive, since no single physical, laboratory, or x-ray finding, or group of findings, is pathognomonic. 45% of pulmonary infarctions present as pulmonary problems and 35% as cardiac problems. The rest suggest abdominal and neurological conditions. (1) Pneumonia is the most common error in diagnosis. Upper respiratory symptoms usually precede pneumonia, and the sudden onset of pulmonary symptoms without preceding respiratory symptoms should make one suspicious. Pleural effusion frequently develops very rapidly within 24-48 hours, which is too rapid for pneumonia, and this finding on x-ray is very suggestive of pulmonary infarction.

Myocardial infarction is the next most common diagnosis entertained. The electrocardiogram is perhaps the most valuable diagnostic aid here. As we all know, however, the electrocardiogram may be negative in infarction in some cases for several days. During this time, the transaminase test may be of considerable value, since it has been negative in most cases of pulmonary infarction and positive in myocardial infarction. Caution should be used, however, in interpreting the transaminase test if any suspicion of embolic infarction of the liver or muscles is present. (1, 7)

ROENTGENOLOGY

In the past, much stress has been placed on the typical x-ray and electrocardiographic findings following pulmonary embolism. Both of these may be entirely negative, especially if a small embolus is present, or if the x-ray is made in less than 12-24 hours after the embolism. Also, if one waits for typical x-ray findings to make a diagnosis of embolism, or

infarction, a great many will be overlooked. Suggestion to the roentgenologist that pulmonary infarction may be present is of great help to him in interpretation. X-rays of the chest may show certain configurations suggestive of pulmonary infarction, but the diagnosis can not be made from these alone. The same pattern might fit pneumonia, pneumonitis, and pleurisy. It has been said that pulmonary infarction prefers two pleural surfaces and often times three, and pleural effusion is often present. Pleural effusion occurring rapidly after acute chest pain suggests pulmonary infarction. Multiple pulmonary infarctions also are often present, affecting both lungs.

ELECTROCARDIOGRAPHY

If the electrocardiogram is suggestive, it will usually show a right ventricular strain pattern and a change in the electrical position of the heart, usually a clockwise rotation of the heart and a shift of the electrical axis to the right. These findings are usually transient, occurring within 24-48 hours after the attack. A full blown picture of acute cor pulmonale is not as common as that of partial acute cor pulmonale. Also, transient inversion of the T-Waves in the right precordial leads occurs not infrequently, suggesting right ventricular strain and ischemia, and sometimes is mistaken for myocardial infarction. Complete or incomplete transient right bundle branch block is occasionally seen. (1, 7, 9)

It must be remembered that a clockwise rotation of the heart may be a normal finding in some patients. An electrocardiogram which may have been taken before pulmonary embolism is of great value for comparison.

TREATMENT

The prevention of pulmonary embolism would be the ideal treatment. However, until we know more about the coagulation of blood in veins, whether it be due to pathology in the wall of the vein, or a defect in the blood itself, pulmonary embolism will continue to occur in spite of all precautions. The incidence, however, probably can be reduced by knowing those conditions which predispose to pulmonary embolism. The early recognition of thrombo-phlebitis and phlebothrombosis, and certainly pulmonary embolism of the non-fatal type, is paramount to prevent possible death from a fatal attack.

Observations at the Mayo Clinic before the discovery of anticoagulants indicated that if a patient had a post operative embolism and survived, there was a 30.5% chance of another attack, and an 18% chance of a fatal one. (14) In December 1947, Cosgriff of Columbia University reported 817 cases of thrombo-embolism treated with anticoagulants in which only 1.1% had further emboli and .9% had fatal emboli. (15) This is a marked reduction. There are many other reports which confirm the fact that anticoagulant therapy started immediately after a first attack definitely reduces the incidence of other attacks.

Pulmonary embolism occurs more frequently following long operations, lasting 2 hours or more. Laparotomy for disease of the female organs, splenectomy, resection of the colon and stomach, and orthopedic operations on the legs, have a greater risk of venous thrombosis. Also, the incidence is higher in the presence of obesity, anemia, cardiac disease, varicose veins, previous thrombophlebitis, severe infections and carcinoma. (1, 11) Preventive anticoagulant therapy is justified in some of these cases, especially 48 hours after surgery, and danger of hemorrhage is less.

Early ambulation probably has reduced the incidence of pulmonary embolism. (18) Nelson Barker of the Mayo Clinic, makes the statement that there is no question that early ambulation helps to prevent pulmonary embolism in many but not all instances. (11) The physician should be sure the patient walks and does not just sit, since this may even induce thrombosis. (1) Where ambulation is not possible, the patient should be repeatedly told to exercise the legs in bed and change position. During long operations, especially where hypotension occurs, the patient's legs should be exercised on the operating table if possible, and again in the recovery room, and when he returns to his room. Thrombo-embolism has been shown to be more fre-

quent following shock and hypotension. (16)

Cardiac cases certainly should exercise their legs and walk as soon as possible.

The value of elastic bandages applied to the legs to prevent thrombosis is debatable. (11, 17)

The treatment of a large pulmonary embolism is mainly the treatment of shock along with oxygen administration. Narcotics should be given in large amounts. It is thought that the embolus lodged in a large pulmonary artery is insufficient in itself to cause shock, but that the reflex arterial and bronchial spasm associated *is* sufficient to cause shock and death. (21) Because of this spasm, it has been advocated that Papaverine, Atropine, and Aminophyllin be given intravenously. (11) The author has very little confidence in this and has more faith in intravenous Morphine, 1/6 to ¼ gr. doses along with Atropine, 1/75 to 1/100 gr. doses. Levophed intravenously is usually necessary.

Anticoagulant therapy should be started as soon as venous thrombosis or pulmonary embolism is recognized. Anticoagulant therapy should not be withheld in thrombo-phlebitis because of the 20% danger of embolism and because the dividing line between thrombo-phlebitis and phlebo-thrombosis is not always clear. Rapid acting Heparin, 50 mg., should be given intravenously every 4 hours for the first 24 hours. (11) The Lee White Coagulation time should be checked at the end of each 8 hours. Coumadin preparations should be started at the same time. The prothrombin time should be checked after 24 hours, but also 4 hours after the last dose of Heparin.

Anticoagulant therapy is successful in most cases but not in all. Vein ligation may be necessary if recurrence occurs in spite of anticoagulant therapy. Occasional pulmonary embolism reoccurs in spite of both procedures. Inferior vena cava vein ligation is thought to be safer than femoral vein ligation, although it is more disabling. (19, 20) It should be used only as a last resort.

Anticoagulant therapy should be continued at least ten days or until the patient becomes ambulatory. The patient should be immobilized until acute symptoms subside.

SUMMARY

Pulmonary embolism is the most common disease of the lungs encountered in a general hospital. It may mimic pulmonary disease in 45% of the cases, cardiac disease in 35% of the cases, and abdominal and neurological disease in the rest.

A high degree of suspicion is the greatest asset in diagnosis, especially in conditions where pulmonary embolism is prone to occur. No one part of the picture may be specific for pulmonary embolism. The circumstances under which it occurred and the whole picture must be correlated. Sudden pleuritic or substernal pain is the most common symptom, although it does not occur in all cases. Pleural effusion occurring rapidly after pleuritic pain is very suggestive of pulmonary infarction.

X-rays are of considerable value if the attending physician informs the roentgenologist that he suspects pulmonary embolism. The electrocardiogram may be suspicious but not diagnostic. The transaminase determination is usually negative if the infarction is confined to the lungs. The early recognition of thrombo-phlebitis and phlebo-thrombosis, and certainly non-fatal pulmonary embolism, and the early use of anticoagulant therapy will reduce the incidence of fatal pulmonary embolism.

If the visiting and resident staffs of general hospitals can be alerted to the incidence of pulmonary embolism, it will be more frequently recognized and the occurrence of non-fatal and fatal emboli can be reduced.

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Indications for Surgery of Peptic Ulcer**

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An adequate experience with the problems relating to peptic ulcer must form certain opinions pertaining to their management in the mind of the operating surgeon. An analysis of the histories of those patients coming to operation demonstrates the futility of long protracted medical management. The long period that many have experienced of repeated hospitalization, of a protracted dietary regimen and continuous medication, associated with chronic gastric distress and nutritional deficiency, is convincing evidence of the futility of protracted attempts to control, by medical measures, the chronic penetrating peptic ulcer lesions.

The satisfactory results obtained by adequate surgery, as related by these long standing gastric sufferers, is convincing evidence of the effectiveness of operative interference. It has been our observation that ulcers that do not heal and remain healed after two or three trials of adequate medical management become chronic penetrating lesions, will not heal and are more effectively treated by surgery. It is because of this observation and the results obtained by surgery upon several hundred lesions of this nature that has caused me to express myself as follows:

ULCER PERFORATION

The diagnosis of perforation is usually easy to make. If not confirmed by x-ray evidence of free air in the peritoneal cavity, acute pancreatitis must be considered. Many of the symptoms are similar and the presence of a high blood amylase does not confirm the diagnosis of acute pancreatitis or exclude perforation. The patient with a perforated ulcer may have a high blood amylase from peritoneal absorption of escaped duodenal enzymes.

Air in large quantities injected into the stomach through a nasal tube may present a pneumoperitoneum on x-ray film if perforation is present which was not observed on the initial film. If no air is present by this method there is no free perforation and immediate operation is not indicated. This procedure can do no harm. We have used it several times as a differential diagnostic agent.

Perforation of gastric or duodenal ulcer is considered by nearly all medical men as a surgical emergency. We know that when perforation occurs associated with either of these ulcers, there is an escape of gas and an outpouring of the contents of the viscus. Contamination occurs and serious infection may ensue. Some perforations are so slight that they may be spontaneously sealed by omentum or surrounding tissues. This has been repeatedly demonstrated at abdominal exploration. Only slight contamination and little or no infection of consequence occur in these sealed perforations. Clinically the symptoms have been slight and usually unrecognized. When perforation is clinically apparent, we advise surgical exploration rather than gastric drainage and a medical regimen.

The problem of closure versus resection is controversial and to our point of view is related to whether the lesion is gastric or duodenal, obstructive or previously associated with hemorrhage, and time interval.

Gastric ulcers which perforate should usually be resected at the time of exploration because of the uncertainty of the histological nature of the lesion. We have no means other than microscopic section to determine the cytology of the ulcer; and since at least 10 per cent of these gastric ulcerative lesions are malignant, resection rather than simple closure is advised.

This was dramatically demonstrated to me more than twenty years ago when I closed a supposed benign perforation of a gastric ulcer in a man thirty-nine years of age, to have him return six months later with an unresectable carcinoma of the stomach.

Perforation of a duodenal ulcer into the abdominal cavity may require simple closure, or certain conditions may indicate subtotal gastric resection. When there is no sign of obstruction, when the ulcer is not chronic, not extensively indurated near the pylorus, has not been

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intractable to medical management and has not bled, we believe the ulcer should be simply closed. Drainage should be employed if the duration of the perforation and abdominal contamination indicates. When in doubt, drain; it can do no harm. A perforation without induration or evidence of chronicity may remain symptomless after closure. Each case must be individualized. Some prominent surgeons have for years resected these lesions, in most instances at the time of operation for perforation. We do, under the aforementioned condition.

INTRACTABLE ULCER

Intractable ulcer is a penetrating ulcer, usually on the posterior wall of the stomach or duodenum, which because of induration, fibrosis, vascular occlusion and crater formation is not likely to heal with any permanent degree of security under medical management. The lesion is comparable to a varicose ulcer of the leg, which heals with a thin, poorly vascularized epithelium. The blood supply is so poor that a well nourished granulation bed filling the exposed crater is impossible and nutrition is insufficient to promote permanent healing; hence an early breakdown is to be expected.

Surgeons believe that because of penetration, crater formation and insufficient blood supply for a granulating base, adequate epithelization will not result and healing will not be permanent. A patient with such an ulcer cannot carry on his normal activities, is intractable to medical management and should be operated upon.

Medical men state that these ulcers are not intractable. It is only the doctor or the patient who is intractable. They believe that comfort can be obtained by medical measures and that the ulcers will heal. How many people afflicted with such an ulcer can afford to subscribe to the required bedrest, diet and medical treatment? How long could one maintain good nutritional status under such a protracted regimen? How can he retain his economic responsibility and just how long would his zeal for such a restricted life exist?

We believe that with resection, postoperative gastric comfort can be largely expected, which is far more than can be obtained over a long period of medical treatment. The occasional unsatisfactory result after operation in no way compares to the uncertainty of long years of protracted medical management.

MASSIVE HEMORRHAGE FROM ULCER

Massive hemorrhage is one of the major complications of peptic ulcer, and the decision to continue with medical treatment or institute surgical interference is hard to make. The medical and surgical viewpoints are often at divergent extremes. There must be a happy medium based upon the age of the patient, the degree of obvious arterial sclerosis, the patient's past history as to repeated hemorrhages and the response to a limited number of blood transfusions at the time of hemorrhage. Many papers have been written on this subject but no plan has been presented whereby a definite criterion would indicate immediate operation. The decision for operation is never an easy one to make. The tendency is, too often, to defer operation until vascular collapse is a problem of great magnitude.

We believe that in the presence of massive hemorrhage from peptic ulcer, when circulatory balance is not restored after transfusions of 4 to 5 units of blood, and the patient is still bleeding an operation should be instituted at once. We have never regretted this approach; and since some basis for action should be established, we believe this to be a workable plan.

Since most of these cases are seen first by the medical consultant, we believe that surgical advice s h o u l d be promptly sought and an unbiased cooperative appraisal should be the basis of therapeutic action. We agree that bleeding often ceases spontaneously and many patients recover without operation. It is, therefore, hard to determine the procedure to follow in the individual case. We recognize, however, that the problem is real and that many patients die from massive hemorrhage from peptic ulcer who could have been saved by a timely operation. We would not consider operation for all patients with bleeding ulcer, nor would we condole medical management for all of them. Each case must be

medically and surgically evaluated. We believe it is better to err on the side of surgery to stop the bleeding. We know from many experiences that these patients stand surgery remarkably well and that as soon as the bleeding is controlled the patient, who is in vascular collapse, will through transfusion support regain circulatory balance and a sustained blood pressure and become warm and pink. We advocate surgical cessation of the bleeding, with good expected results, even for those cold, pulseless patients with no blood pressure who are in extreme collapse from hemorrhage. No other procedure is effective. The results well reward the surgeon for his courage and determined action. We often wonder why one ponders the wisdom of operation in these serious cases of hemorrhage when no such delay is considered in other similar surgical emergencies.

PYLORIC OBSTRUCTION— CHRONIC AND RECURRENT

Chronic pyloric obstruction represents the end result of a longstanding, progressively fibrotic constriction of the outlet of the stomach from ulceration. Some surgical procedure must be performed to provide an outlet for the passage of food, if life is to be sustained. The choice of operation is, I think, dependent on the age of the patient and the acid values of the gastric contents.

For patients of advanced years with a relative short life expectancy and low acid values there is no better operation than posterior gastroenterostomy, with or without vagotomy (preferably without). If the patient has a long life expectancy and has high acid values, gastric resection is preferable. An accompanying vagotomy is a matter of individual preference. The ulcer is chronic, has long since run its course and the gastric values are usually not high enough to suggest an associated vagotomy.

Recurrent obstruction is preliminary to chronic obstruction. In all chronic fibrotic obstruction there have been previous episodes of this nature. Many patients with an ulcer near the pylorus get along fairly well under restricted and dietary precaution. They cannot, however, under normal activity escape periodic attacks of pyloric obstruction from recurrent edema and activation of the ulcer. We therefore believe gastric resection should be advised after two or three trials with adequate medical management has failed to permit the patient to follow the way of livelihood for which he is prepared without recurring obstruction and discomfort.

CANCER AND GASTRIC ULCER

Much has been written about the relationship of acute gastric ulcer to malignancy. There is no accurate way to make a differential diagnosis, and he who treats a gastric ulcer for a protracted period of time without the realization that he may be dealing with a malignant ulcer is assuming a grave responsibility. There is no way of making an accurate diagnosis. The brush cytology method is excellent if positive, but is of no value if negative. Response to treatment, the acid values of the gastric secretion, the diameter of the ulcer crater as seen by x-ray or the radiological indications of healing have not proved infallible. Even the gross appearance of the lesion after removal or multiple frozen sections at the operating table are often inaccurate. The location of the ulcer is of some value. Ulcers on the greater curvature are more frequently malignant than ulcers elsewhere. Those on the lesser curvature are less likely to be malignant than those in the prepyloric region of the stomach. Certainly there is a diagnostic error of about 10 per cent, based upon all known methods of differential diagnosis, and he who treats a gastric ulcer for a protracted period of time without the realization that he may be dealing with a malignant ulcer is assuming a grave responsibility. There is no way of making an accurate clinical diagnosis. We have 11 per cent and many have a much higher percentage.

Notable authorities as Welch and Allen (1), Marshall (2), Ravdin and Horn (3), Strode (4), and others confirm the high percentage of error in the preoperative diagnosis between benignity and malignancy in gastric ulcer.

ULCER HIGH ON LESSER CURVATURE

Ulcers high on the lesser curvature of the stomach are rare and are difficult surgical problems. High subtotal gastric resection, removing the entire lesser curv-

ature, as in radical surgery for cancer of the stomach, can often be carried out leaving a good gastric pouch. We have not thought it advisable to perform total gastrectomy unless involved glands demonstrated cancer. We have not thought that gastrotomy with ulcer biopsy and frozen section accurately determined the true nature of the lesion. We therefore have not been content with such an uncertain histological biopsy finding to leave the ulcer in situ and carry out a distal gastrectomy. Hence we think that fundusectomy and esophagogastrostomy the preferred operation if high resection cannot be accompanied with a segment of the fundus remaining as a food pouch. We have five cases in which we have performed fundusectomy with esophagogastrostomy, the esophagus being anastomosed to the distal end of the stomach accompanied with a sphincter pylorotomy. Esophagitis has not been a distressing factor in this small group.

GASTROJEJUNAL ULCER

When gastroenterostomy has been performed as a sole procedure and a stomal ulcer develops, it is not sufficient to disconnect the gastroenterostomy and restore gastroduodenal continuity. Recurrence will occur in 50 per cent of cases and in 60 per cent if pyloroplasty is performed as reported by Walters (5).

When stomal ulcer develops in association with gastroenterostomy, the bypass should be disconnected and subtotal gastric resection should be performed. When recurrence has developed following subtotal gastrectomy, as mentioned under the discussion of vagotomy, a vagotomy should be carried out if no obstruction is present. The remaining stomach should be preserved if possible. Additional resection should be carried out only in the presence of an obstructive jejunal ulcer. If vagotomy is not successful, further resection can be performed subsequently.

REMOVAL OF ULCER

We believe that most ulcers can be surgically removed even when they are low, indurated and close to the common bile duct. We believe that any attempt to resect a duodenal ulcer should in all instances be accompanied with exposure of the common bile duct. This affords an appraisal of its relation to the indurated ulcer and an evaluation of the ability to close the duodenal stump securely after resection. We therefore know from experience with a large group of posterior penetrating duodenal ulcers that removal of the ulcer can usually be done. We disapprove of the exclusion operation. We believe it is unwise to leave the ulcer when it is possible to remove it. Although excluded from the erosion effects of the gastric juice, many ulcers may not heal or remain healed, as evidenced by subsequent bleeding. I have always believed that the pathologic condition, when possible, should be removed.

VAGOTOMY

The cephalic phase of duodenal ulcer and the complications of stomal ulcer after resection present the two types of ulcer in which vagotomy is most useful.

The gastric phase, accompanied with high gastric acidity, is controlled best through a lowering of the gastric acid by a high subtotal gastrectomy. Vagotomy is not essential. It is our policy to perform vagotomy in all cases in which there is a recurrent stomal ulcer without obstruction rather than perform another resection if the primary resection was adequate. Secondary resection can always be carried out and we prefer to conserve the remaining stomach if possible. Our results have been good. The evaluation of vagotomy and gastroenterostomy is dependent on the period of time after operation. Walters (5), reports unfavorable results in 141 patients subjected to this procedure. Seventy per cent had good results, 25 per cent satisfactory results and 5 per cent had recurrent ulcers in a follow up of 2.8 years; with the passage of further time the results were progressively poor because of the more frequent occurrence of gastrojejunal ulcer, about 7 per cent. The frequency of recurring ulcer after radical partial gastrectomy has been about 2 to 3 per cent.

Vagotomy with posterior gastroenterostomy is the operation of choice when a patient is thin and a poor eater. A patient with this nutritional deficiency will never gain weight after resection. It is also a wise procedure in the case of duodenal ulcer associated with much edema and

inflammatory reaction when it is apparent that closure of the duodenal stump might be insecure. A large amount of night secretion with high acid values, we think, indicates vagotomy associated with high gastric resection.

DUMPING SYNDROME

The dumping syndrome is an objection to partial gastrectomy for peptic ulcer and is constantly presented as an argument against operation. It usually occurs during the meal or shortly thereafter. It is associated with weakness, pallor, often sweating, and sometimes nausea and vomiting. In our experience it has not been a complication associated with any great degree of disability. A faint weakness is sometimes complained of; rarely is it disabling or permanent.

Presumptive theories concerning the origin of this condition are based upon the rather abrupt mechanical distention of the jejunal loop by the sudden dumping of the stomach contents into it—solar plexus response.

I believe that too large a gastrojejunal stoma, the chemical factor of rapid undiluted hypertonic fluid being delivered in volume into the jejunum, resulting in the elevation of the blood sugar to a high level followed by a hypoglycemic reaction is an important factor. It is therefore a hyperglycemic phase, followed in a period of time by a hypoglycemic one. I believe that the type of operation has a great deal to do with it. We are not bothered much with it since we perform the Hofmeister anticolic type of anastomosis and buttress the distal limb of the jejunum against the closed upper third of the lesser curvature of the residual stomach. We make a small stoma not over two fingers in diameter about the diameter of the jejunum, and with suture of the distal limb of the jejunum against the closed segment of stomach on the side of the lesser curvature, a valve-like outlet is made; thus the stomach cannot dump its contents into the jejunum suddenly and in great volume as it can in the Polya type of operation. This retarded emptying of the stomach can be well demonstrated by postoperative roentgenograms. In this anastomosis the proximal loop is placed at the greater curvature and the distal at the lesser curvature.

SUMMARY

1. Perforation requires surgery and is discussed from the point of view of simple closure versus resection.

2. Intractable ulcer is a surgical problem. The surgical comfort far exceeds any that can be obtained by protracted and repeated attempts at medical treatment.

3. Massive hemorrhage is a controversial medical and surgical problem. Unbiased cooperation is urged. It is better to err on the side of early surgical relief than protracted medical observation.

4. Recurrent obstruction finally must be corrected by surgical measures.

5. Vagotomy is discussed as a routine procedure in gastrectomy. Our conclusion is that there are definite values to vagotomy and there is a useful field for its employment. Especially is it useful in patients with poor nutritional values, in low-lying duodenal ulcer, and patients with high secretion and high acid values.

6. The treatment of gastrojejunal ulcer associated with gastroenterostomy and gastric resection is discussed and a personal opinion is expressed. Resection in the former and vagotomy in the latter is recommended.

7. The one indication of intestinal replacement of a segment of the stomach by either a portion of the colon or small intestine is presented. Its merits and objections are noted. The procedure is not advised in the treatment of duodenal ulcer.

8. Attempts are made to discuss the problem from a practical point of view.

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The Evaluation of Permanent Impairment Of Extremities and Back**

J. E. MARKEE*

INTRODUCTION

This article is based on a motion picture presented at the 83rd Annual Session of the Arkansas Medical Society held in Ft. Smith on April 12th through 15th, 1959.

That film is designed to serve as an illustrative supplement to the Special Edition of the Journal of the American Medical Association, "A Guide to the Evaluation of Permanent Impairment of the Extremities and Back." That film is not meant to supplant the Guide, but rather to clarify what may appear to be a ponderous and complex mass of calculations and measurements.

The Guide, which appeared as a Special Edition of the Journal of the American Medical Association on February 15, 1958, was prepared for the Committee on Medical Rating of Physical Impairment which the Board of Trustees appointed in September, 1956. It was adopted by the House of Delegates at the 1957 Annual Meeting in Philadelphia.

The members of the Committee on Medical Rating of Physical Impairment are truly representative.

As is stated in the Guide, the Evaluation or Rating of permanent impairment requires a large and a small goniometer. They are the only medical devices necessary. These techniques of measurement are simple, practical and scientifically sound.

CONTENT OF THE FILM

The film deals with the evaluation of the disability resulting from restricted motion, ankylosis, and amputation.

The evaluation of impairment resulting from restricted motion deals with both restriction of motion at a single joint and also with restriction of motion at a number of joints.

The first example illustrates the technique of measurement of flexion and extension at the metacarpophalangeal joint of any finger which is illustrated in Figures 1 and 2.

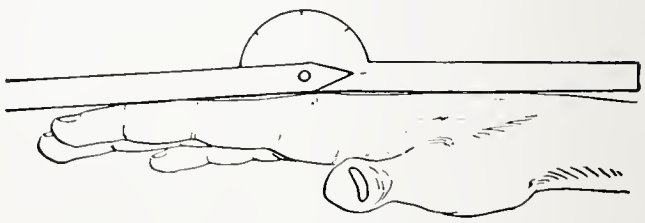


Fig. 1

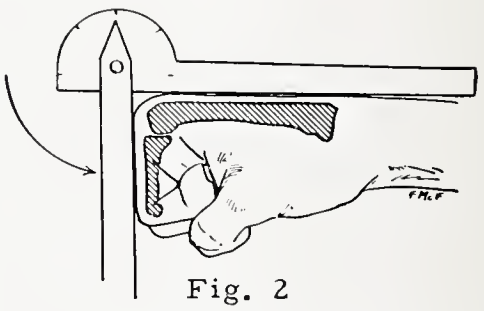


Fig. 2

The testing is carried out in the following steps:

1. Place the patient's hand in a neutral position.*

2. Center the goniometer over the dorsum of the metacarpophalangeal joint. Record the goniometer reading. (In the example illustrated in the movie, the reading was 5°).

3. With the patient attempting to make a fist, follow the range of motion with the goniometer arm. Record the end of the arc of motion which in this subject is 50°. The difference between the first reading and last reading is 45°.

4. Consult the Restricted Motion Table (Table 1) and find the figure of 45° in the column of motion.

Table I

Note: In this table and some of the others, we have illustrated only a portion of the tables printed in the Guide.

This patient has lost 45° of motion and

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**Illustrations reprinted from The Journal of the American Medical Association Special Edition, February 15, 1958.

*In the film, the additional consequences of disability such as atrophy of the first dorsal interosseous in the first patient are pointed out. These characteristics are omitted from this article to achieve greater clarity and brevity.

has a 27% impairment of his index finger. In the table for Fingers (Table II), we find under index finger the figure closest to 27%.

He has a 7% impairment of the hand. As is shown on the table for the Upper Extremity (Table III), a 7% impairment of the hand resulted in a 6% impairment of the upper extremity.

The table on the whole man (Table IV) shows that a 6% impairment of the upper extremity results in a 4% impairment of the whole man.

TABLE I
RESTRICTED MOTION TABLE

Average range of FLEXION—EXTENSION=90 degrees
Value to total range of joint motion=100%

Flexion from neutral position (0°) to:	Degrees of Joint Motion LOST	RETAINED	
0°	90	0	55%
10°	80	10	49
20°	70	20	43
30°	60	30	37
40°	50	40	31
50°	40	50	24
60°	30	60	18
70°	20	70	12
80°	10	80	6
90°	0	90	0

TABLE II

IMPAIRMENT OF Index Finger	HAND
0% — 1%	= 0%
2% — 5%	= 1%
6% — 9%	= 2%
10% — 13%	= 3%
14% — 17%	= 4%
18% — 21%	= 5%
22% — 25%	= 6%
26% — 29%	= 7%
30% — 33%	= 8%
34% — 37%	= 9%
38% — 41%	=10%
42% — 45%	=11%
46% — 49%	=12%
50% — 53%	=13%
54% — 57%	=14%
58% — 61%	=15%
62% — 65%	=16%
66% — 69%	=17%
70% — 73%	=18%
74% — 77%	=19%
78% — 81%	=20%
82% — 85%	=21%
86% — 89%	=22%
90% — 93%	=23%
94% — 97%	=24%
98% —100%	=25%

Little Finger

0% — 9%	= 0%
10% — 29%	= 1%
30% — 49%	= 2%
50% — 69%	= 3%
70% — 89%	= 4%
90% —100%	= 5%

IMPAIRMENT OF Middle Finger	HAND
0% — 2%	= 0%
3% — 7%	= 1%
8% — 12%	= 2%
13% — 17%	= 3%
18% — 22%	= 4%
23% — 27%	= 5%
28% — 32%	= 6%
33% — 37%	= 7%
38% — 42%	= 8%
43% — 47%	= 9%
48% — 52%	=10%
53% — 57%	=11%
58% — 62%	=12%
63% — 67%	=13%
68% — 72%	=14%
73% — 77%	=15%
78% — 82%	=16%
83% — 87%	=17%
88% — 92%	=18%
93% — 97%	=19%
98% —100%	=20%

Ring Finger

0% — 4%	= 0%
5% — 14%	= 1%
15% — 24%	= 2%
25% — 34%	= 3%
35% — 44%	= 4%
45% — 54%	= 5%
55% — 64%	= 6%
65% — 74%	= 7%
75% — 84%	= 8%
85% — 94%	= 9%
95% —100%	=10%

TABLE III

Impairment of Upper Hand Extremity		Impairment of Upper Hand Extremity		Impairment of Upper Hand Extremity	
0%	= 0%	35%	= 32%	70%	= 63%
1%	= 1%	36%	= 32%	71%	= 64%
2%	= 2%	37%	= 33%	72%	= 65%
3%	= 3%	38%	= 34%	73%	= 66%
4%	= 4%	39%	= 35%	74%	= 67%
5%	= 5%	40%	= 36%	75%	= 68%
6%	= 5%	41%	= 37%	76%	= 68%
7%	= 6%	42%	= 38%	77%	= 69%
8%	= 7%	43%	= 39%	78%	= 70%
9%	= 8%	44%	= 40%	79%	= 71%
10%	= 9%	45%	= 41%	80%	= 72%
11%	= 10%	46%	= 41%	81%	= 73%
12%	= 11%	47%	= 42%	82%	= 74%
13%	= 12%	48%	= 43%	83%	= 75%
14%	= 13%	49%	= 44%	84%	= 76%
15%	= 14%	50%	= 45%	85%	= 77%
16%	= 14%	51%	= 46%	86%	= 77%
17%	= 15%	52%	= 47%	87%	= 78%
18%	= 16%	53%	= 48%	88%	= 79%
19%	= 17%	54%	= 49%	89%	= 80%
20%	= 18%	55%	= 50%	90%	= 81%
21%	= 19%	56%	= 50%	91%	= 82%
22%	= 20%	57%	= 51%	92%	= 83%
23%	= 21%	58%	= 52%	93%	= 84%
24%	= 22%	59%	= 53%	94%	= 85%
25%	= 23%	60%	= 54%	95%	= 86%
26%	= 23%	61%	= 55%	96%	= 86%
27%	= 24%	62%	= 56%	97%	= 87%
28%	= 25%	63%	= 57%	98%	= 88%
29%	= 26%	64%	= 58%	99%	= 89%
30%	= 27%	65%	= 59%	100%	= 90%
31%	= 28%	66%	= 59%		
32%	= 29%	67%	= 60%		
33%	= 30%	68%	= 61%		
34%	= 31%	69%	= 62%		

TABLE IV

IMPAIRMENT OF Upper WHOLE Extremity	MAN	IMPAIRMENT OF Upper WHOLE Extremity	MAN	IMPAIRMENT OF Upper WHOLE Extremity	MAN
0%	= 0%	35%	= 21%	70%	= 42%
1%	= 1%	36%	= 22%	71%	= 43%
2%	= 1%	37%	= 22%	72%	= 43%
3%	= 2%	38%	= 23%	73%	= 44%
4%	= 2%	39%	= 23%	74%	= 44%
5%	= 3%	40%	= 24%	75%	= 45%
6%	= 4%	41%	= 25%	76%	= 46%
7%	= 4%	42%	= 25%	77%	= 46%
8%	= 5%	43%	= 26%	78%	= 47%
9%	= 5%	44%	= 26%	79%	= 47%
10%	= 6%	45%	= 27%	80%	= 48%
11%	= 7%	46%	= 28%	81%	= 49%
12%	= 7%	47%	= 28%	82%	= 49%
13%	= 8%	48%	= 29%	83%	= 50%
14%	= 8%	49%	= 29%	84%	= 50%
15%	= 9%	50%	= 30%	85%	= 51%
16%	= 10%	51%	= 31%	86%	= 52%
17%	= 10%	52%	= 31%	87%	= 52%
18%	= 11%	53%	= 32%	88%	= 53%
19%	= 11%	54%	= 32%	89%	= 53%
20%	= 12%	55%	= 33%	90%	= 54%
21%	= 13%	56%	= 34%	91%	= 55%
22%	= 13%	57%	= 34%	92%	= 55%
23%	= 14%	58%	= 35%	93%	= 56%
24%	= 14%	59%	= 35%	94%	= 56%
25%	= 15%	60%	= 36%	95%	= 57%
26%	= 16%	61%	= 37%	96%	= 58%
27%	= 16%	62%	= 37%	97%	= 58%
28%	= 17%	63%	= 38%	98%	= 59%
29%	= 17%	64%	= 38%	99%	= 59%
30%	= 18%	65%	= 39%	100%	= 60%
31%	= 19%	66%	= 40%		
32%	= 19%	67%	= 40%		
33%	= 20%	68%	= 41%		
34%	= 20%	69%	= 41%		

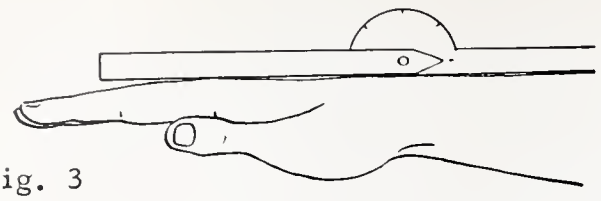


Fig. 3

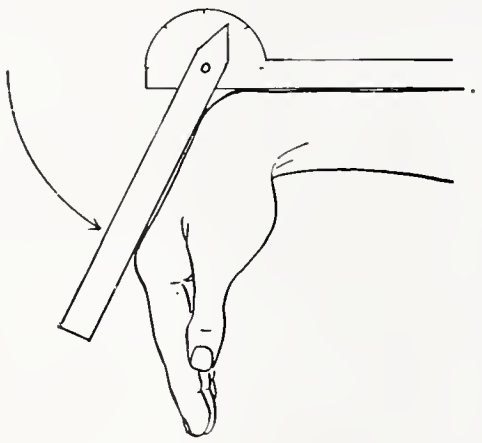


Fig. 4

TABLE V
RESTRICTED MOTION TABLE

Average range of DORSI-PALMAR FLEXION=130 degrees
Value to total range of joint motion=70%

	Degrees of Joint Motion LOST	RETAINED	
Palmar-flexion from neutral position (0°) to:			
0°	70	0	11%
10°	60	10	10
20°	50	20	8
30°	40	30	6
40°	30	40	5
50°	20	50	3
60°	10	60	2
70°	0	70	0

In the film, the technique of measurement of flexion and extension at the metacarpophalangeal joint was demonstrated with a second patient, but will not be illustrated here.

As a third example, in a different patient, the impairment of Palmar-Flexion at the wrist joint was tested.

1. Place the patient in the neutral position, as shown in Figure 3. Note the pronation of the forearm.

2. Center the goniometer on the patient's wrist as shown in Figure 3. Record the goniometer reading. (0°)

3. With the patient palmar flexing the wrist as far as possible, as shown in Figure 4, follow the range of motion with the goniometer arm. Record the end of the arc of motion. (30° in this example)

4. Consult the restricted motion table for palmar-flexion from the neutral position.

Table V

There was 30° of motion, hence 40° was lost and 30° retained. The impairment of the upper extremity was 6%.

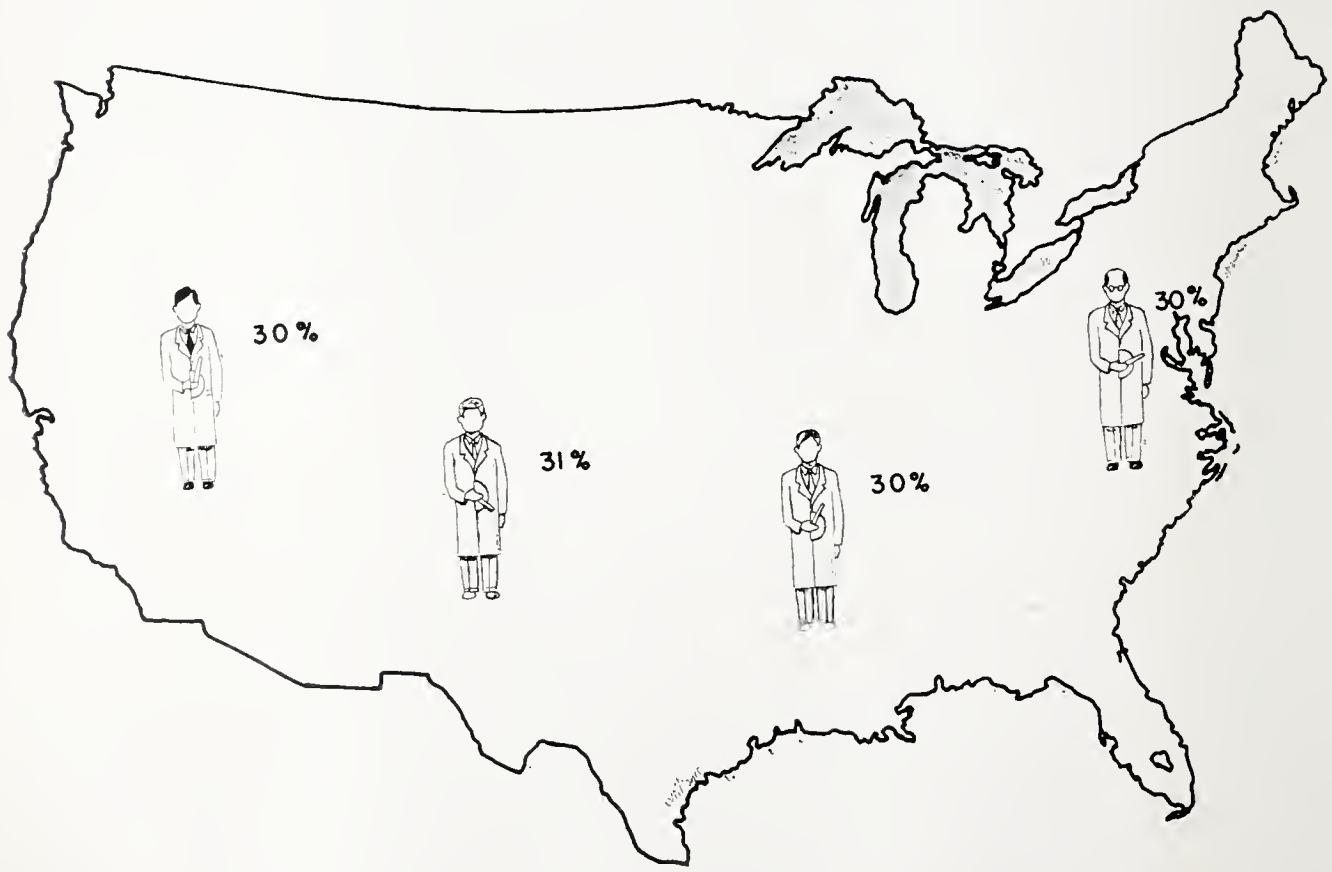


Fig. 5

By consulting Table IV, we find that a 6% impairment of the upper extremity results in a 4% impairment of the whole man.

So far we have considered only impairment. As is pointed out in the preface to the Guide, impairment is a purely medical condition. Obviously, in any part of the country different physicians could carry out these same tests. As is illustrated below, they would arrive at uniform percentages of impairment of the whole man. Percent of impairment is a necessary prerequisite towards financial remuneration of the patient which will be considered later.

Let us return to the evaluation of percentage impairment of the whole man and consider next an example with restricted motion at a number of joints; that is, the finger, the elbow and the shoulder. Let us test restriction of motion at each of these three joints. To test the distal interphalangeal joint of the index finger, we must:

1. Place the patient's hand in the neutral position as shown in Figure 6.

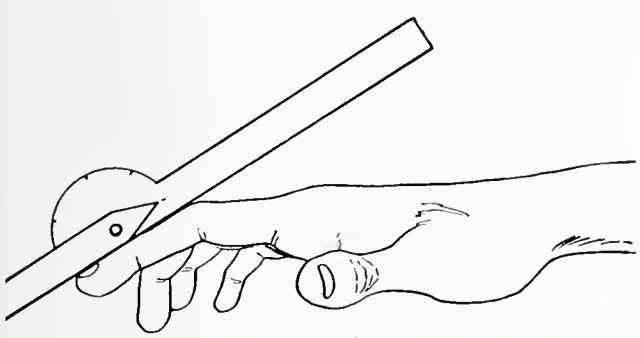


Fig. 6

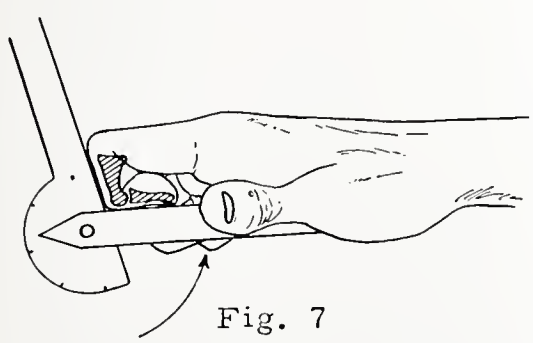


Fig. 7

2. Center the goniometer over the dorsum of the distal interphalangeal joint as shown in Figure 6. Record the goniometer reading. (0°)

3. With the patient flexing the distal interphalangeal joint as far as possible as shown in Figure 7, follow the range of motion with the goniometer arm. Record the end of the arc of motion. (30°)

4. Consult the Restricted Motion Table (Table VI) for the corresponding impairment of the finger.

TABLE VI
RESTRICTED MOTION TABLE

Average range of FLEXION-EXTENSION=70 degrees
Value to total range of joint motion=100%

Flexion from neutral position (0°) to:	Degrees of Joint Motion LOST	RETAINED	
0°	70	0	45%
10°	60	10	38
20°	50	20	32
30°	40	30	26
40°	30	40	19
50°	20	50	13
60°	10	60	6
70°	0	70	0

The table for the distal interphalangeal joint of any finger illustrates that the average range of flexion-extension is 70°. In this patient, the range of flexion from the neutral position was 30°. Forty degrees of motion was lost. The patient retained 30° of motion. The impairment of the finger was 26%. As is shown in Table II, a 26% impairment of the index finger results in a 7% impairment of the hand and, as is demonstrated in Table III, a 7% impairment of the hand results in a 6% impairment of the upper extremity. The 6% impairment of the upper extremity results in a 4% impairment of the whole man (Table IV). This figure of 4% impairment we will use again after we have tested motion at two other joints.

To determine the additional consequences of restricted motion at the elbow, let us determine the restriction of flexion and extension which was the only abnormality of movement at the elbow.

1. Place the patient in a neutral position as shown in Figure 8. Note the supination of the forearm.

2. Center the goniometer next to the elbow joint as shown in Figure IX. Record the goniometer reading with the goniometer arm along the axis of the forearm. (0°)

3. With the patient flexing the arm, as shown in Figure IX, follow the range of motion with the goniometer arm. Record the end of the arc of motion. (30°)



Fig. 8

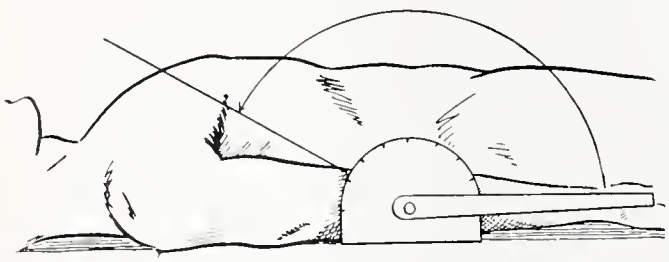


Fig. 9

4. Consult the Restricted Motion Table (Table VII) for corresponding impairment of the upper extremity.

TABLE VII
RESTRICTED MOTION TABLE

Average range of FLEXION-EXTENSION=150 degrees
Value to total range of joint motion=60%

Flexion from neutral position (0°) to:	Degrees of Joint Motion LOST	RETAINED	
0°	150	0	39%
10°	140	10	36
20°	130	20	34
30°	120	30	31
40°	110	40	29
50°	100	50	26
60°	90	60	23
70°	80	70	21
80°	70	80	18
90°	60	90	16
100°	50	100	13
110°	40	110	10
120°	30	120	8
130°	20	130	5
140°	10	140	3
150°	0	150	0

The table for restricted motion of the elbow joint states that the average range of flexion-extension is 150°. In this patient, the range of flexion from the neutral position was only 30°. The patient lost 120° of motion, and retained 30° of motion. The impairment of the upper extremity was 31%. This impairment of the upper extremity resulted in 19% impairment of the whole man (Table IV).

Our next step is to obtain corresponding data at the 3rd joint which was affected in this patient; namely, forward elevation and abduction of the shoulder joint. To test the shoulder joint for forward elevation:

1. Place the patient on his back with the arms at his side, as shown in Figure 10. Note the pronation of the forearm.



Fig. 10

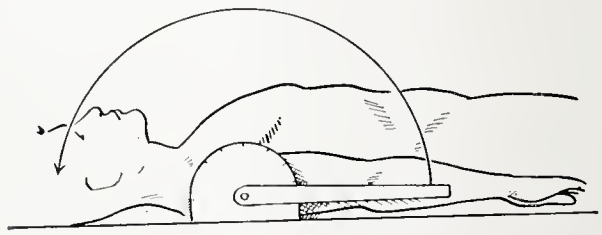


Fig. 11

2. Center the goniometer next to shoulder joint as shown in Figure 11.

Record the goniometer reading with the goniometer arm along the axis of the upper arm. (0°)

3. With patient elevating both arms as far as possible as shown in Figure 10, follow the range of motion with the goniometer arm. Record the end of the arc of motion in the arm to be tested. (50°)

4. Consult the Restricted Motion Table (Table VIII) for the corresponding impairment of upper extremity.

TABLE VIII
RESTRICTED MOTION TABLE

Average range of FORWARD—BACKWARD ELEVATION =190 degrees
Value to total range of joint motion=33%

Forward elevation from neutral position (0°) to:	Degrees of Joint Motion LOST	RETAINED	
0°	150	0	16%
10°	140	10	15
20°	130	20	14
30°	120	30	13
40°	110	40	12
50°	100	50	11
60°	90	60	9
70°	80	70	8
80°	70	80	7
90°	60	90	6
100°	50	100	5
110°	40	110	4
120°	30	120	3
130°	20	130	2
140°	10	140	1
150°	0	150	0

The restricted motion table shows that the average range of forward-backward elevation at the shoulder is 190°. In this patient the forward elevation, from the neutral position, was restricted to 50°. The



Fig. 12

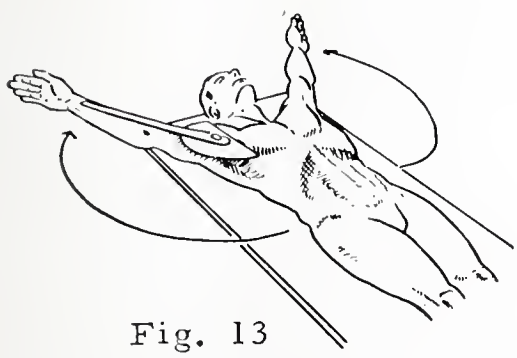


Fig. 13

patient lost 100° of motion and retained 50°.

The percent of impairment of the upper extremity is therefore 11%. This causes a 7% impairment of the whole man (Table IV).

This patient had an additional difficulty at the shoulder; namely, a restriction of abduction. To test for abduction-adduction at the shoulder:

1. Place the patient on his back as shown in Figure 12. Note the position of the forearm.

2. Center the goniometer over the shoulder joint as shown in Figure 12. Record the reading with the goniometer arm along the axis of the patient's arm. (0°)

3. With the patient abducting both arms as far as possible as shown in Figure 13, follow the range of motion with the goniometer arm. Record the end of the arc of motion in the arm to be tested. (10°)

The table for restricted motion at the shoulder joint (Table IX) states that the average range of abduction-adduction is 180°.

In this patient, abduction was restricted to 60°, 90° of motion was lost, 60° of motion was retained. The impairment of the upper extremity was 10%. This impairment of the upper extremity resulted in a 6% impairment of the whole man (Table IV).

In this patient certain movements at

TABLE IX

			Impairment of Upper Extremity
AMPUTATION—At Joint			100%
RESTRICTED MOTION TABLE			
Average range of ABDUCTION—ADDUCTION=180 degrees Value to total range of joint motion=33%			
	Degrees of Joint Motion		
	LOST	RETAINED	
Abduction from neutral position (0°) to:			
0°	150	0	17%
10°	140	10	16
20°	130	20	14
30°	120	30	13
40°	110	40	12
50°	100	50	11
60°	90	60	10
70°	80	70	9
80°	70	80	8
90°	60	90	7
100°	50	100	6
110°	40	110	4
120°	30	120	3
130°	20	130	2
140°	10	140	1
150°	0	150	0
Adduction from neutral position (0°) to:			
0°	30	0	3%
10°	20	10	2
20°	10	20	1
30°	0	30	0

the shoulder were normal and, consequently, were not illustrated. The normal movements were adduction at the shoulder, backward elevation at the shoulder and rotation at the shoulder. This patient had restriction of four types of movements at three different joints, the finger, the elbow and the shoulder. The consequent impairment of the whole man can be determined by utilizing the combined values table. The principle involved can be best illustrated on an ordinary graph with one value rep-

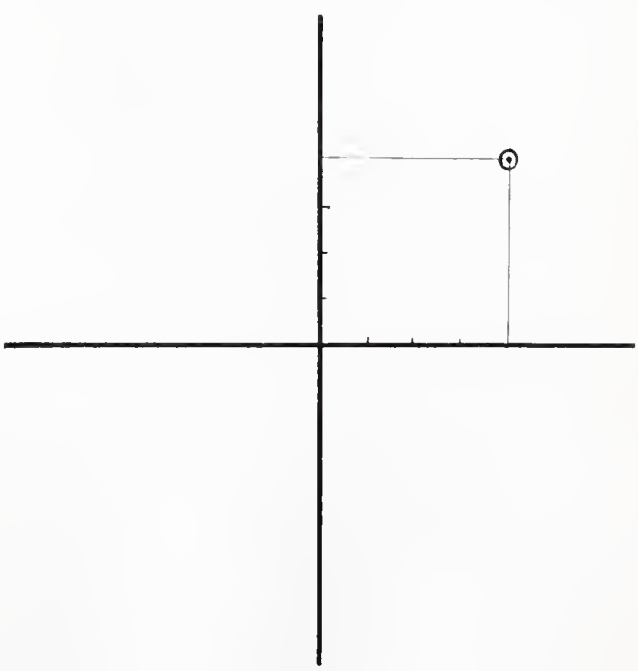
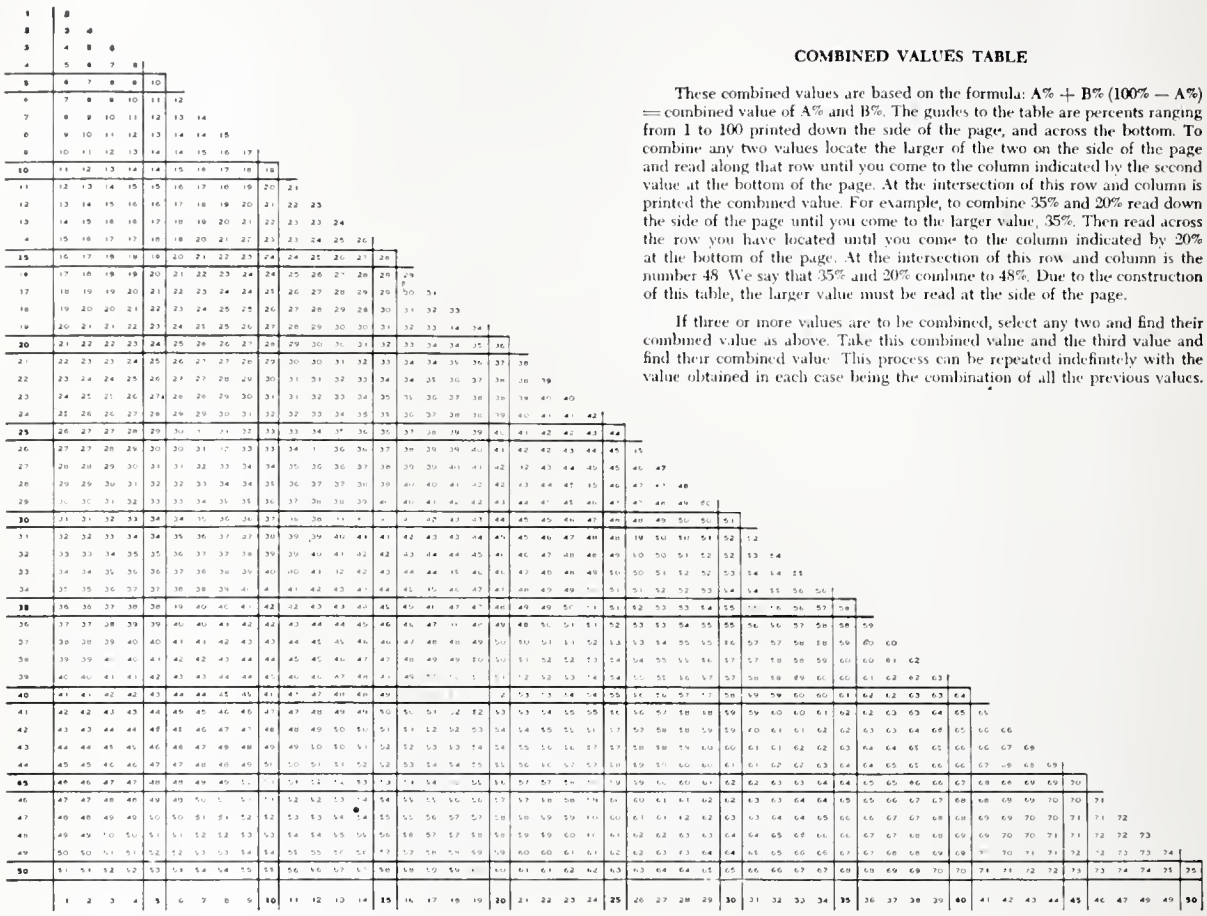


Fig. 14

Table X



COMBINED VALUES TABLE

These combined values are based on the formula: A% + B% (100% — A%) = combined value of A% and B%. The guides to the table are percents ranging from 1 to 100 printed down the side of the page, and across the bottom. To combine any two values locate the larger of the two on the side of the page and read along that row until you come to the column indicated by the second value at the bottom of the page. At the intersection of this row and column is printed the combined value. For example, to combine 35% and 20% read down the side of the page until you come to the larger value, 35%. Then read across the row you have located until you come to the column indicated by 20% at the bottom of the page. At the intersection of this row and column is the number 48. We say that 35% and 20% combine to 48%. Due to the construction of this table, the larger value must be read at the side of the page.

If three or more values are to be combined, select any two and find their combined value as above. Take this combined value and the third value and find their combined value. This process can be repeated indefinitely with the value obtained in each case being the combination of all the previous values.

resented on the ordinate and the other on the abscissa (Figure 14).

The combination of these two is merely the point where the lines from those values intersect. However, it must be pointed out that to use the combined values table (Table X) one must always locate the larger of the two values on the left side of the table, and the smaller value at the bottom of the page.

The four values that we will combine for this patient are: 4% impairment for the index finger, 19% impairment for the elbow, 7% impairment for the shoulder, and 6% impairment of the shoulder.

The largest of these values is 19%. Consequently, we will locate 19% at the left of the page and read along that row until we come to the column indicated by the second value at the bottom of the page, that is 4%. At the intersection of this row and column is printed the combined value, in this case 22%. Let us combine that value with the next value, that is 7%. Again we will read down the left hand column to 22%, and across that row until we come to the column indicated by 7%, at the bottom of the page. At the intersection of this row and column is printed the combined value of 27%. To combine the 27% with the remaining value of 6%, we will again read down the left hand column until we come to 27%, and along that row to the column indicated by 6% at the bottom of the page. At the intersection of the column and row we find our combined value of 31%. Note that this is a different figure than would be obtained by merely adding the four percentages.

This process can be repeated indefinitely with the values obtained, each being the combination of all the previous values.

As the movie demonstrated, definite testing procedures are carefully described in the Guide. Different physicians in different parts of the country might carry out these same tests in slightly different ways. They might use different goniometers, or they might position the patient differently, or they might introduce individual differences in the reading of the goniometer.

Let us return to the previous patient to demonstrate that differences in testing

have little effect on the statement of impairment of the whole man. At the elbow joint, we demonstrated a range of flexion from the neutral position of only 30°. Let us assume that some other physician recorded a larger figure; namely, 50°. For this example, we have assumed a much greater error of measurement than could be expected. Reference to Table VII demonstrates that the impairment of the upper extremities would be 26% instead of 31°. From Table IV, we find that a 26% impairment of the upper extremity would have caused a 16% impairment of the whole man. If we had combined 16% with the other values (Table X), this would have given us a result of 30% impairment of the whole man instead of the 31% we demonstrated. This example shows that individual differences in measurements have a negligible effect on the statement of impairment of the whole man.

So far, our testing has been concerned only with restricted motion. We must now consider the relation of ankylosis and amputation to impairment of the whole man. As is indicated in Table XI, the degree of impairment of the individual resulting from amputation of a certain part is related to the functional significance of that part.

Let us begin with amputations involving the upper extremity. Amputation of the thumb results in a 40% impairment of the hand, whereas amputation of the little finger results in only 5% impairment of the hand. Again we may utilize the tables, for instance the 40% impairment of the hand resulting from amputation results in 36% impairment of the upper extremity (Table III) and this 36% impairment of the upper extremity results in 22% impairment of the whole man (Table IV).

Reference to the table on Multiple Digits (Table XII) permits a ready understanding of the impairment resulting from the combined effects of the amputation of two or more digits.

Thus, the amputation of the index finger results in a 25% impairment of the hand, and if that amputation is combined with the loss of the thumb the hand is impaired by 65%. If to those are added the loss of the middle finger, the impairment reaches 85% and the loss of the thumb, index, middle, ring and little fingers results in a 100% impairment of the hand. However, note that a hand with no digits is still useful, as is shown in Table III, and that a 100% impairment of the hand results in a 90% impairment of the upper extremity, while a 90% impairment of the upper extremity results in only a 54% impairment of the whole man (Table IV).

The tables for multiple amputations can be combined by using the combined values table (Table X) and this process can be repeated indefinitely with the value in each case being the combination of all the previous values.

Let us consider next the permanent impairment resulting from ankylosis. In general, for such determinations, we can use the same illustrations that we would use

TABLE XI
AMPUTATIONS

	Digit	Hand	Impairment of Upper Extremity	Whole Man
Forequarter amputation				70%
Disarticulation at shoulder joint			100%	60%
Amputation of arm above deltoid insertion			100%	60%
Amputation of arm between deltoid insertion and elbow joint			95%	57%
Disarticulation at elbow joint			95%	57%
Amputation of forearm below elbow joint proximal to insertion of biceps tendon			95%	57%
Amputation of forearm below elbow joint distal to insertion of biceps tendon		100%	90%	
Disarticulation at wrist joint		100%	90%	
Midcarpal or mid-metacarpal amputation of hand		100%	90%	
Amputation of all fingers except thumb at metacarpophalangeal joints		60%	54%	
Amputation of *Thumb*				
At metacarpophalangeal joint or with resection of carpometacarpal bone	100%	40%		
At interphalangeal joint	75%	30%		
Amputation of *Index Finger*				
at metacarpophalangeal joint or with resection of metacarpal bone	100%	25%		
At proximal interphalangeal joint	80%	20%		
At distal interphalangeal joint	45%	11%		
Amputation of *Middle Finger*				
At metacarpophalangeal joint or with resection of metacarpal bone	100%	20%		
At proximal interphalangeal joint	80%	16%		
At distal interphalangeal joint	45%	9%		
Amputation of *Ring Finger*				
At metacarpophalangeal joint or with resection of metacarpal bone	100%	10%		
At proximal interphalangeal joint	80%	8%		
At distal interphalangeal joint	45%	5%		
Amputation of *Little Finger*				
At metacarpophalangeal joint or with resection of metacarpal bone	100%	5%		
At proximal interphalangeal joint	80%	4%		
At distal interphalangeal joint	45%	2%		

TABLE XII
MULTIPLE DIGITS

All Joints	Amputated	IMPAIRMENT OF HAND Ankylosed in Full Extension	Position of Function	Full Flexion
Thumb	40%	30%	23%	40%
Thumb Index	65%	53%	43%	65%
Thumb Index Middle	85%	71%	59%	85%
Thumb Index Ring	75%	62%	51%	75%
Thumb Index Little	70%	58%	47%	70%
Thumb Index Middle Ring	95%	80%	67%	95%
Thumb Index Middle Little	90%	76%	63%	90%
Thumb Index Ring Little	80%	67%	55%	80%
Thumb Index Middle Ring Little	100%	85%	71%	100%
Thumb Middle	60%	48%	39%	60%
Thumb Middle Ring	70%	57%	47%	70%
Thumb Middle Little	65%	53%	43%	65%
Thumb Middle Ring Little	75%	62%	51%	75%
Thumb Ring	50%	39%	31%	50%
Thumb Ring Little	55%	44%	35%	55%
Thumb Little	45%	35%	27%	45%
Index	25%	23%	20%	25%
Index Middle	45%	41%	36%	45%
Index Middle Ring	55%	50%	44%	55%
Index Middle Little	50%	46%	40%	50%
Index Middle Ring Little	60%	55%	48%	60%
Index Ring	35%	32%	28%	35%
Index Ring Little	40%	37%	32%	40%
Index Little	30%	28%	24%	30%
Middle	20%	18%	16%	20%
Middle Ring	30%	27%	24%	30%
Middle Ring Little	35%	32%	28%	35%
Middle Little	25%	23%	20%	25%
Ring	10%	9%	8%	10%
Ring Little	15%	14%	12%	15%
Little	5%	5%	4%	5%

for the measurement of restricted motion. For example, for the measurements of the wrist joint ankylosed in palmar-flexion, we can use Figure 4. The base of the goniometer should be centered as it would be for measuring the neutral position. The arm of the goniometer should be rotated so as to measure the deviation from the neutral position as shown in Figure 4.

The table for the wrist joint should be consulted, but for this purpose the table for ankylosis should be utilized.

For our example, we may assume that the wrist is ankylosed in a position of 70° or in full palmar-flexion. In this position,

TABLE XIII
ANKYLOSIS TABLE

Joint ankylosed at:	
	0° (neutral position) 30%
	10° 39
	20° 47
	30° 56
	40° 64
	50° 73
	60° 81
	70° (full palmar-flexion) 90

there would be a 90% impairment of the upper extremity (Table III) and a 54% impairment of the whole man (Table IV). Note that if, in a different patient the wrist joint were ankylosed at 10° palmar-flexion, there would be only 30% impairment of the upper extremity (Table III) and only a 23% impairment of the whole man (Table IV).

In some of the testing it is not necessary to use goniometers. For instance, rotation of the trunk in the dorso-lumbar region may be tested as follows:

1. Place the patient in the neutral position as shown in Figure 17, with the examiner preventing motion of the pelvis. The goniometer is not used.

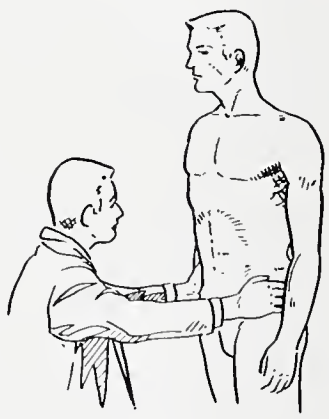


Fig. 15

2. With the patient twisting to the right and left as far as possible as shown in Figure 16, record the range of motion in each direction separately as estimated by the arc described by the frontal plane of the body as it turns from the neutral position.



Fig. 16

3. Consult the Restricted Motion Table for corresponding impairment of the spine. (Table XIV).

As is illustrated in the motion picture and in the Guide, a number of other mo-

TABLE XIV
DORSOLUMBAR REGION

RESTRICTED MOTION TABLE

Average range of ROTATION=60 degrees
Value to total range of dorsolumbar motion=35%

		Degrees of Dorsolumbar Motion LOST	RETAINED	Impairment of Spine
Right rotation from neutral position (0°) to:	0°	30	0	5%
	10°	20	10	4
	20°	10	20	2
	30°	0	30	0
Left rotation from neutral position (0°) to:	0°	30	0	5%
	10°	20	10	4
	20°	10	20	2
	30°	0	30	0

tions can be tested without using a goniometer.

DISCUSSION

As was pointed out in the film, the utilization of this Guide can, on a national scale, result in evaluation of impairment in uniform terms. Permanent impairment is a purely medical condition. When the doctor has stated impairment of the whole man in percentage terms, he has fulfilled his medical responsibility.

It is the proper role of the administrator to translate impairment into financial terms; that is, into the dollars that the patient is to receive in compensation for permanent disability. The evaluation of permanent impairment should always be delayed until maximal recovery and rehabilitation have been obtained.

A clear separation of these two roles will permit the doctor to operate in the area in which he has special training and special competence. On the other side of the fence the administrator can operate in his area of special training and special competence. He can take into consideration the loss of working or earning capacity of such individualistic patients as farmers, brick layers or even violinists.

SUMMARY

To summarize, the film entitled "The Evaluation of Permanent Impairment of the Extremities and Back" serves as a supplement to a similarly titled Guide which was published as a Special Edition of the Journal of the American Medical Association, on February 15, 1958. By following the testing procedures and calculations contained therein, it is possible to state the degree of physical impairment in percentage terms and to achieve a consistent reporting of permanent impairment by the doctors in all areas of this country.

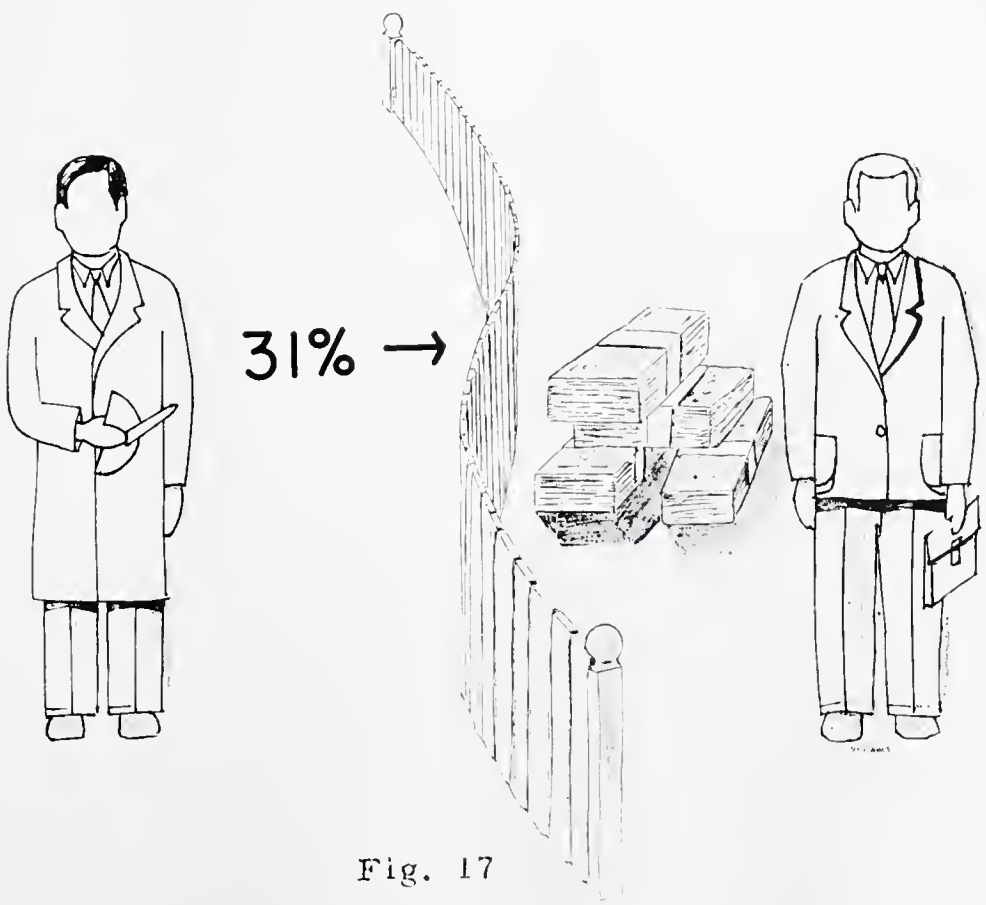


Fig. 17

wherever there is inflammation, swelling, pain

VARIDASE®

Streptokinase-Streptodornase Lederle

BUCCAL Tablets

conditions for a fast & comfortable comeback

Host reaction to injury or local infection has a catabolic and an anabolic phase. The body responds with inflammation, swelling and pain. In time, the process is reversed. VARIDASE speeds up this normal process of recovery.

By activating fibrinolytic factors VARIDASE shortens the *undesirable phase*, limits necrotic changes due to inflammatory infiltration, and initiates the constructive phase to speed total remission. Medication and body defenses can readily penetrate to the affected site; local tissue is prepared for faster regrowth of cells. In infection, the fibrin wall is breached while the infection-limiting effect is retained. In acute cases, response is often dramatic. In chronic cases, VARIDASE Buccal Tablets can stimulate a successful response to primary therapy previously considered inadequate or failing.

for routine use in injury and infection
...new simple buccal route

VARIDASE Buccal Tablets should be retained in the buccal pouch until dissolved. For maximum absorption, patient should delay swallowing saliva.

Dosage: One tablet four times daily usually for five days. When infection is present, VARIDASE Buccal Tablets should be given in conjunction with ACHROMYCIN® V Tetracycline with Citric Acid.

Each VARIDASE Buccal Tablet contains: 10,000 Units Streptokinase and 2,500 Units Streptodornase.

Supplied: boxes of 24 and 100 tablets.

1. Innerfield, I.: Clinical report cited with permission
2. Clinical report cited with permission

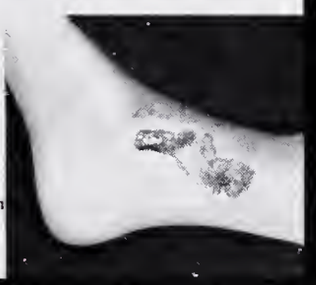
Lederle LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY
Pearl River, New York





FORCE INJURY
severe bruises
. . . swelling
. . . cleared
by fifth day[2]





VARICOSE
ULCER
15 years duration
. . . resolved with
VARIDASE[1]





INFLAMMATORY
DERMATOSIS
rapidly spreading
rhus dermatitis
healed within
a week[1]





INFECTED
LACERATION
marked reversal
in 3 days . . .
returned
to school . . .
losure advanced[1]





THROMBOPHLEBITIS
back on his feet
in a week after
recurrent episode[1]





REFRACTORY
CELLULITIS
normal routine
resumed after 4 days
of VARIDASE[1]

Conference on Diseases of Bones and Joints

THE SKELETON

Although the diagnosis of a malignant bone tumor presents no problem in the advanced stages, it may be extremely difficult in the early stages when definitive and curative treatment is still possible. There are several reasons for this. First, the mild symptoms may not impel the patient to see his doctor. Secondly, the absence of gross findings may lull the doctor into a "wait and see" plan of treatment. Thirdly, there are a considerable number of benign lesions which may closely resemble the early malignant lesion, become malignant, or have malignant variants.

To further clarify the problem of the benign bone tumors, these lesions were discussed at the third meeting of the Orthopaedic Radiology and Pathology Conference*. Although some of them are not true tumors in that the process appears to be purely lytic with no proliferation of neoplastic cells or tumefaction, they may appear similar by x-ray and must be differentiated. Five of these entities are illustrated by the following five cases.

CASE I

R. H., a nineteen year old white female injured the left knee playing softball in May, 1958. She had no real pain thereafter, but an awareness of "something being wrong". Two months prior to admission she developed stiffness in the knee and a limp. On admission to the Arkansas Childrens Hospital October 28, 1958, examination showed a soft, tender mass with increased temperature located in the supracondylar area of the left femur. There was no bruit. All laboratory studies were within normal limits. X-rays revealed the lytic lesion shown in Figure one. A diagnosis of giant cell tumor was made, confirmed by gross findings at operation and by pathologic study. At surgery a large amount of greenish-brown, vascular, friable tissue was removed with a curette and the cavity packed with bone chips. Follow-up to date reveals no recurrence.

This case is very typical of giant cell tumors. They are commonly seen in young adults with the peak of incidence in the third decade and slightly more common in females. They comprize about one-sixth of the benign bone tumors, but ten percent may prove to be or become malignant. Pain is not a prominent feature except in the malignant forms and is therefore an unfavorable sign. About half occur around the knee joint, the common sites being in order of frequency, the lower femur, upper tibia, upper femur, lower tibia, distal radius.

The usual x-ray appearance is that of an eccentrically placed lytic lesion ex-



Fig. 1. Typical Giant Cell Tumor; eccentric, extends to joint, thin expanded cortex, delecate soap-bubble trabeculation, no dense demarcating zone.

*The monthly Orthopaedic-Radiology-Pathology Conference is held on the third Tuesday of each month at the University of Arkansas Medical Center in Room B-114 at 8:00 P.M. All doctors interested in conditions involving the skeleton are cordially invited to attend.

tending to the joint surface. The overlying cortex is thin and expanded, or in the large or more aggressive forms may be penetrated or destroyed. Soap-bubble-like trabecular markings are common but represent ridges on the inner bony surface rather than complete septa.

The gross color and texture varies with the amount of hemorrhage and fibrous tissue and stage of degeneration. The colors from red through brown to green with friable texture are contributed by hemorrhage, and the grey to white element with firmness by fibrosis.

Microscopically the lesions vary and are divided into three grades according to aggressiveness. Grade I, definitely benign, shows giant cells and stroma with regular oval nuclei. The stroma appears loose with little mature fibrous appearance, but mitoses are few. The giant cells are common, often quite large, ranging from ten to over two hundred nuclei. Grade II shows more compact stroma in whorls some atypism and scattered mitotic figures. Grade III shows fewer and smaller giant cells while the stroma is frankly anaplastic.



Fig. 2. Unicameral Bone Cyst; metaphyseal side of epiphyseal line, expands entire shaft, pathologic fracture is common —cortex otherwise intact, trabeculation.

CASE II

D. J., a nine year old white female, was in excellent health with no complaints until December, 1956, when she fell, fracturing the right humerus. X-rays revealed this to be a pathologic fracture through an area of defect in the proximal one-third of the humerus. Soon after admission the cavity was curetted and packed with bank bone. In December, 1958, she was found to have a recurrence of the cyst, Figure 2, and it was packed with a combination of fresh autogenous and bank cancellous bone.

This case is representative of the Unicameral bone Cyst or simple cyst which involves the metaphyseal region of young individuals the average age being ten to fifteen years. However, it is not rare in infants or adults. It arises on the metaphyseal side of the epiphyseal line and remains close to the line while enlarging down the shaft as in this case. When quiescent it moves away from the epiphysis and its distance down the shaft is some indication of the age at which it was active. It occurs in the proximal humerus in about fifty percent of the cases, though the proximal one-third of the femur and tibia are also common locations.

The x-ray appearance is of a lytic lesion involving the entire diameter of the shaft expanding the cortex which is thin, but intact unless fractured. There are again ridges of the inner surface giving a multilocular appearance.

Grossly the lesion is a cavity filled with thin fluid of yellow, green or brown color depending on its lipoid or blood pigment content. Lining the cyst cavity is a membrane which may vary from paper thinness to several millimeters in thickness.

It is only in microscopic appearance that the lesion may be confused with giant cell tumor due to the fact that it contains giant cells. These are found in a loose fibrous stroma generally more in

the region of new vessels and fresh hemorrhage. There are also a few scattered lipophages and chronic inflammatory cells. Good results follow curettage and packing with bone chips but recurrence is common (50%) when still in the active phase.

CASE III

J. H. a sixteen year old colored male was in good health until four to six months prior to admission, at which time he noticed a small mass just superior and medial to the right patella. This caused no difficulty until one month before admission when he noticed the mass would "pop" as he walked. There was minimal soreness, no history of fever, weight loss, etc.



Fig. 3. A rather large Non-osteogenic Fibroma; eccentric, metaphyseal, thin-bulging cortex, appearance of loculation, dense zone of demarcation.

On admission April 1, 1957, he was found to have a hard, non-movable, slightly tender five by four by two centimeters mass above and medial to the right patella with no erythema or increased temperature.

Surgery the next day revealed the lytic areas to be filled with soft, friable reddish brown tissue in some areas while others were firm and light brown. The cavity was packed with autogenous iliac bone. Pathologic study confirmed the x-ray diagnosis of non-osteogenic fibroma. There was solid bony healing with no recurrence one and one-half years later.

This represents a benign tumor eccentrically placed in the metaphyseal region of the larger bones of young individuals (peak in second decade). The cortex bulges and is very thin and may be virtually absent, but is generally intact unless fractured. In contrast to giant cell tumors which show no zone of increased density demarcating the area from the cancellous bone, these show a narrow, dense border. Common sites are lower tibia, lower femur, and upper tibia. The lesion apparently arises in the region of the epiphyseal plate and moves on up the shaft with growth of the bone. The size of the lesion may range from 1 or 2 to about 5 cm. in diameter.

The name "non-osteogenic fibroma" stems from its rather cellular fibroblastic stroma with absence of bony trabeculae or spicules. Another term "Metaphyseal cortical defect" is also used by those who consider it a local growth defect rather than a true neoplasm. This view is supported by the fact that the lesion is rarely seen in adults and therefore may be self healing. It was originally included among giant cell tumors because of the presence of giant cells scattered irregularly throughout the tissue. These have fewer nuclei than the giant cell tumors. About half of the tumors contain lipophages. These foam cells are not associated with the giant cells but occur in nests and impart a yellow color to the tumor. This gave rise to the terms "solitary xanthoma" and "xanthic

variant of giant cell tumor" formerly employed. Inflammatory cells are absent.

If one can be certain of the diagnosis from the x-ray appearance no treatment is necessary, but curettage and packing with bone chips is curative.

CASE IV

R. W., an 11 year old white female, complained of right sided low back pain radiating to the right knee which began insidiously without obvious cause three years prior to admission. The pain came in quick flashes and caused her to favor the right leg. Examination revealed some motor weakness but no sensory or reflex change in the right lower extremity. X-ray revealed the density of the region of the right pedicle of the 4th lumbar vertebra seen in Fig. 4. At surgery a nidus was thought to be exposed by shaving off thin layers. This could not be confirmed by pathological study and in retrospect a block excision is probably to be preferred for this purpose.

Following surgery the pain was much diminished but not completely gone.

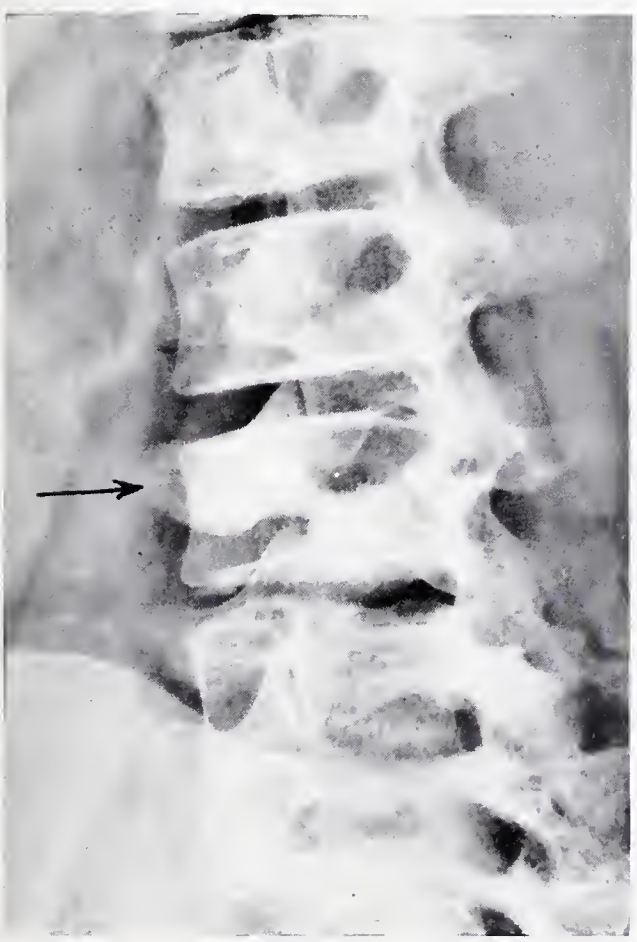


Fig. 4. Osteoid-osteoma involving pedicle; dense surrounding bone, enlargement, nidus obscurred.

This lesion differs from most benign tumors in causing considerable pain, which is gradually progressive, noticed especially at night. The relief obtained from Aspirin or other salicylate is often dramatic and this characteristic may aid in diagnosis. It occurs mainly between the ages of 11-24 years but is not uncommon at younger and older ages and occasionally in the third or fourth decades. The long bones are most frequently involved although the bones of the hand, foot, and the vertebrae are not uncommon sites. There is a 4 to 1 predominance in males.

The active part of the lesion is the nidus, a round or oval zone of less than 2 cm. diameter appearing less dense than the surrounding bone. If centrally located in cancellous bone this surrounding bone is not as dense as when it is found near or in the cortex when it apparently stimulates the laying down of considerable dense cortical bone which may obscure the nidus. It may sometimes be demonstrated by unusually heavy x-ray exposure or by x-ray of the specimen after block excision.

The nidus is composed of closely knit spicules of osteoid tissue which apparently does not calcify to become mature bone. There are osteoblasts, fibroblasts, and osteoclasts but no cartilage. Scattered bony trabeculae in the nidus do not extend through a narrow layer of fibrous tissue which surrounds the nidus so that it can be shelled out.

There has been much discussion over the etiology of this lesion and whether it is neoplastic, inflammatory, metabolic, or developmental. The reactive cortical bone mimics a chronic focal osteomyelitis but the present consensus favors a neoplastic origin.

Excision of the nidus relieves the pain and cures the lesion.

CASE V

J. G., a 7 year old negro male, developed several "kernels" in his neck and right supraclavicular region two years prior to admission. Nine months before admission a hard mass developed in the region of the clavicle. X-ray was said to show an old fracture of the clavicle. The mass was excised by his local doctor and found to be full of blood. The wound

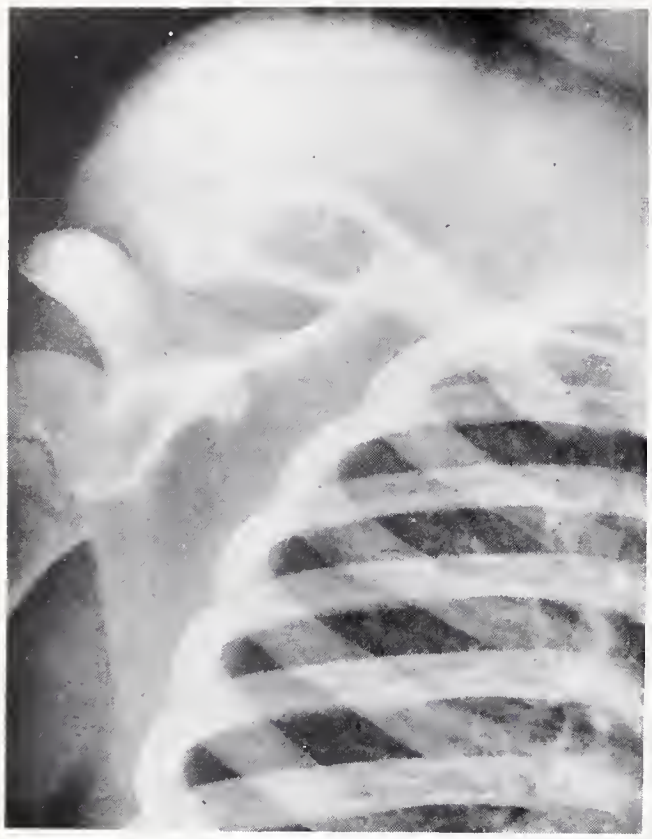


Fig. 5. Aneurysmal Bone Cyst; lytic lesion expanding cortex, irregular thickness of cortex, fine trabeculae, soft tissue mass.

failed to heal and on admission in Sept. 1956, he was found to have an ulcerated mass 10 x 6 x 3 cm. in the region of the clavicle from which blood could be expressed by pressure. There was a loud bruit over the neck and below the clavicle but not over the mass.

X-ray revealed an expanding destructive lesion involving the distal half of the clavicle, Fig. 5.

The entire clavicle and tumor were excised Oct. 5, 1956 and the mass was found to contain many large blood filled channels. Healing was per primam and the patient's h e m o g l o b i n, which had reached 4.85 gms., rapidly returned to normal. Seven months later there was no evidence of recurrence.

The aneurysmal bone cyst, which the case is thought to represent, generally occurs under twenty, whereas 90% of giant cell tumors, of which it was first considered a variant, are said to occur at the age of twenty or above. It is seen most commonly in the metaphyseal region of the long bones but may involve any bone and is equally common in both sexes. It is usually eccentric and may show soft tissue extension. Grossly there are areas of blood filled cavernous spaces and solid areas which may range from friable to fibrous consistency. Microscopically the solid areas show giant cells and osteoid trabeculae. The blood filled spaces have fibrous walls without blood vessel elements.

As in this case, the results are excellent following surgical excision. Since some have been found to regress following incomplete removal, it is probably not necessary to resect the entire bone.

A TEACHING SEMINAR
FROM THE
UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

The Diagnostic Importance of Pupillary Reflexes

PHILIP P. ELLIS, M.D.*

That the examination of the pupillary responses is extremely helpful in recognizing and localizing many central nervous system lesions is a well known clinical fact. However, the mechanisms involved in the normal and abnormal pupillary responses are not usually well remembered by many physicians. It is the purpose of this communication to review the physiology of the normal pupillary response, to describe the mechanisms involved in abnormal responses, and to mention the significance of altered pupillary reflexes.

THE NORMAL PUPIL

The pupil of the eye is the aperture in the iris diaphragm. Through it pass the light rays that will permit an image to be formed on the retina. Its size is determined by the state of contraction of the sphincter and dilator muscles of the iris. The normal diameter of the pupil varies from 2.5 to 7 mm, but in most adults the size is between 3-4 mm. The diameter of the two pupils is usually equal though differences of 1 mm. may exist without any clinical significance. In the newborn infant the pupils are in a state of contraction. After the first few months of life the pupils reach the 3 to 4 mm. size. This size remains throughout life until senescence when the pupils again become contracted. The diameter of the pupil is somewhat greater in nearsighted and blonde individuals than in farsighted and brunette people.

The pupillary size varies with the amount of illumination, becoming more dilated in the dark and more contracted in bright light. During accommodation (focusing of the lens for near) the pupils become more contracted. States of fear, excitement, surprise and pain cause pupillary dilatation.

During general anesthesia the size of the pupil varies with the depth of anesthesia. This is best seen with ether anesthesia. In Stages I and II the pupils are dilated. In Stage III, or surgical state of anesthesia, the pupils become smaller than normal. With Stage IV and impending respiratory paralysis, the pupils again become dilated.

THE INNERVATION OF THE PUPIL

Both the sympathetic and parasympathetic divisions of the autonomic nervous system send fibers to the iris muscles (figure 1). The sphincter, or constrictor muscle of the iris, is innervated by the parasympathetic system via branches of the oculomotor or III cranial nerve. The nerve fibers going to the sphincter muscle synapse in the ciliary ganglion before entering the eyeball with the short ciliary nerves. The dilator muscle of the iris is innervated by the sympathetic system. The course of these latter nerves is somewhat complex. From the hypothalamus the fibers run down through the brain stem and into the spinal cord and leave the cord with spinal nerves of the thoracolumbar region. They then run in the paravertebral chain through synapses until reaching the superior cervical ganglion. From here the fibers pass up along the internal carotid and enter the orbit with branches of the ophthalmic artery and the branches of the ophthalmic division of the trigeminal nerve. Some of the fibers enter the eye with-

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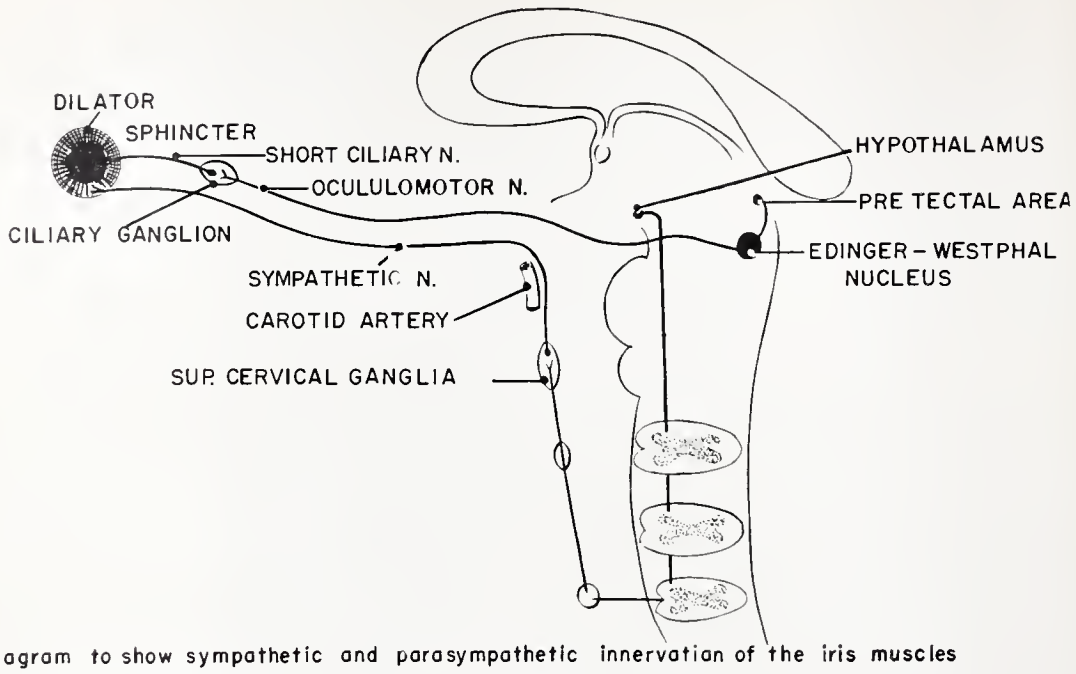


Diagram to show sympathetic and parasympathetic innervation of the iris muscles

FIG. I AFTER COGAN

out going through the ciliary ganglion and some enter via the short ciliary nerves after synapsing in the ciliary ganglion.

The mutual antagonism between the sympathetic and parasympathetic nervous system is well demonstrated in the pupil. If there is stimulation of the parasympathetics or paralysis of the sympathetics, a contraction of the pupil (miosis) develops. If there is stimulation of the sympathetics or paralysis of the parasympathetics, a dilatation of the pupil (mydriasis) develops.

THE PUPILLARY LIGHT REFLEX

The pathways of the pupillary light reflex are diagramed in figure 2. The afferent fibers of the pupillary light reflex follow the pathway of the visual fibers back almost to the lateral geniculate body where they leave the optic tract and run to the pretectal region. Like the visual fibers their origin is in the retina. Fibers from the nasal half of the retina course back in the optic nerve and then cross in the optic chiasm to then run in the optic tract of the opposite side. The fibers from the lateral half of the retina run back in the optic nerve and continue in the optic tract on the same side. After leaving the optic tract the fibers concerned with pupillary reflex, synapse in the pretectal region. After the synapse, the fibers run to the Edinger-Westphal nucleus on the same and opposite sides. The nucleus of Edinger-Westphal is part of the III cranial nerve nuclei.

The efferent fibers travel from the nucleus of Edinger-Westphal by way of the III cranial nerve to the ciliary ganglion. The exact course of the fibers is variable. Sometimes the pupillary fibers course in the branch of the oculomotor nerve that supplies the inferior rectus and inferior oblique muscles. Sometimes the fibers have an independent path to the ciliary ganglion. From the ciliary ganglion, the efferent fibers run in the short ciliary nerves, of which there are 15-20 for each eye.

In testing the pupillary light reflex, one should check for pupillary contraction in the eye the light is shined upon — the direct light reflex; in addition one should observe the pupillary contraction in the opposite eye — the indirect or consensual light reflex. Each eye is tested separately and the pupillary response noted in the same and opposite eye. There should be a prompt, brisk reaction in each eye, both direct and consensual, if there is no interference with the reflex arc. It is important to have a bright source of light in testing these light reflexes since false responses may result without a sufficient light stimulus.

OTHER PUPILLARY REFLEXES

The accommodative or near pupillary reflex is characterized by a bilateral pu-

pillary contraction on looking at near objects. The exact afferent pathway is somewhat obscure. The fibers probably follow an altogether different pathway than those concerned with the light reflex in reaching the nucleus of Edinger-Westphal. The efferent fibers are identical to those concerned with the light reflex. Testing the near reflex is performed by having the patient fixate at a distant object and then suddenly switch his gaze to a near object. On focusing on a near object there should be a brisk bilateral pupillary contraction.

The lid closure-pupillary reflex occurs as a result of some connections of the facial nerve with the nucleus of Edinger-Westphal. The facial nerve innervates the orbicularis oculi muscle which is responsible for eyelid contracture. This reflex may be observed by forcibly holding the eyelids open while the patient attempts to close them. On eyelid closure, the pupil contracts.

The trigeminal pupillary reflex is demonstrable when there is an irritation to the cornea such as a foreign body. The trigeminal nerve carries the afferent fibers which make connections with the nucleus of Edinger-Westphal and the efferent fibers, previously described, carry the stimulation for the pupillary contraction.

ALTERATIONS IN PUPILLARY SIZE

Abnormal pupillary size disturbance may result from disease of the eye, diseases of the central nervous system, and the use of drugs—both in the eye and take systemically.

The pupil in a blind eye is usually dilated. The pupils become dilated in death. Acute glaucoma may cause paralysis of the sphincter of the iris and thus mydriasis. Inflammations of the iris cause spasm of the sphincter with resulting miosis. Many times adhesions form between an inflamed iris and the anterior surface of the lens resulting in a constricted pupil. Severe blows to the eye frequently cause a mydriasis.

Instillation of parasympathomimetic drugs such as pilocarpine, eserine or prostigmin will cause pupillary contractions. Pupillary dilation results when sympathomimetic drugs such as phenylephrine or epinephrine are instilled into the eye. Atropine or atropine-like drugs produce a mydriasis by causing a paralysis of the motor and plates of the sphincter muscle. Morphine and histamine act directly on the sphincter muscle, the former drug producing marked miosis after being given systemically.

Miosis occurs when there is a disruption of sympathetic impulse reaching the eye — Horner's syndrome. This condition may result from lesions in the brain stem, spinal cord, upper thorax or along the internal carotid artery.

Mydriasis may result either from a lesion along the afferent or the efferent fibers of the pupillary light reflex arc. Tumors, hemorrhages, degenerative diseases, or a direct trauma may produce pupillary dilatation in this manner.

Altered size of the pupil may localize certain central nervous system disease. For example, a fixed, dilated pupil on one side following head trauma, probably indicates there has been a herniation of the hippocampus through the tentorium and the temporal lobe is pressing on the III nerve. Bilateral constricted pupils that do not react to light but do react to near, indicate there is involvement of the pretectal area. Such a type of pupillary reaction is known as the Argyll Robertson pupil and is diagnostic of central nervous system syphilis.

The pupillary size and light reflex may also be a prognostic sign. In head injuries the presence of bilateral dilated fixed pupils is a very grave sign. The same poor prognosis exists in other comatosed patients who have dilated fixed pupils. Interestingly enough, it is unknown whether bilateral dilated fixed pupils represent a mesencephalon lesion involving the oculomotor nuclei or is the result of cerebellar and hemispheric lesions.

PUPILLARY REFLEX CHANGES IN LOCALIZED LESIONS

The presence or absence of the direct and consensual light reflex in each eye might be very helpful in localizing a central nervous system lesion. Figure 2 shows the different pupillary light responses caused by involvement of various parts of the reflex arc. The lesions are numbered and the pupillary light reflex changes are described below.

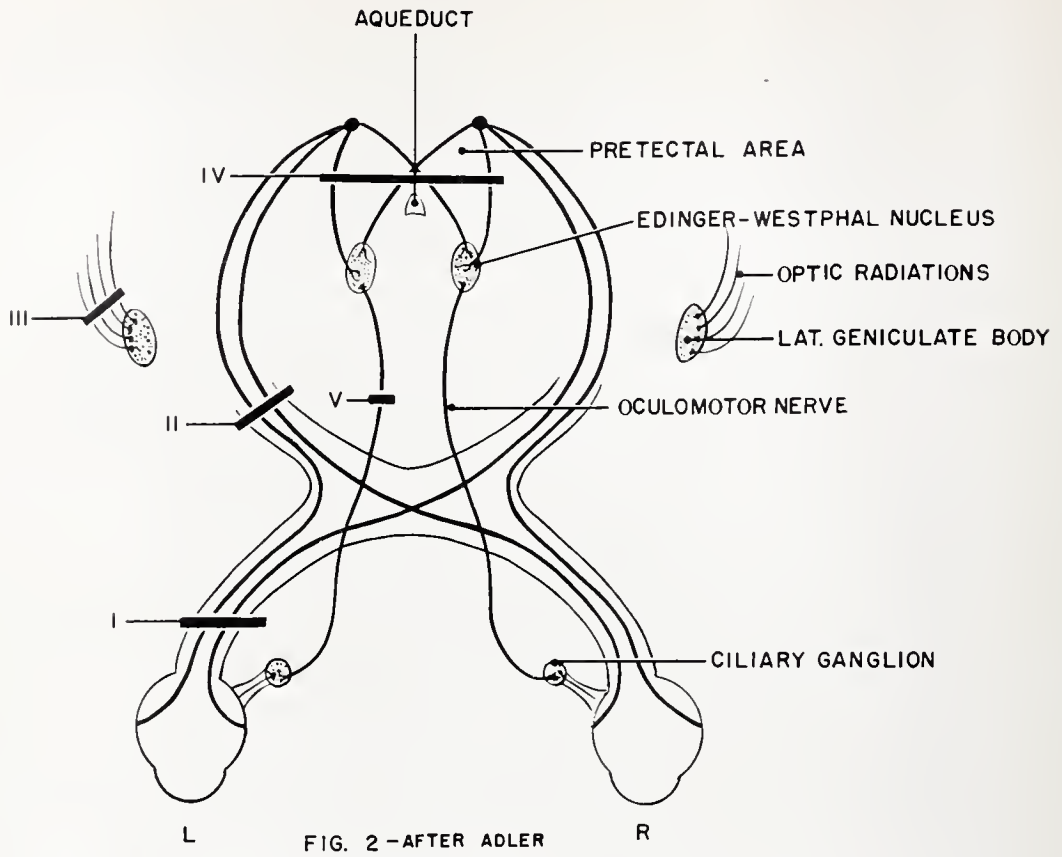


FIG. 2 – AFTER ADLER

Diogrom to show afferent and efferent pathwoy of light pupillory reflex. Numerols indicote hypotheticol lesions at different levels. (see text for description of oltered responses of pupll to such lesions)

Lesion I. Since the afferent fibers from the right eye are interrupted, there would be no direct reflex in the right eye and no consensual reflex in the left eye. The direct reflex in the left eye and consensual reflex in the right eye would remain intact.

Lesion II. The afferent fibers from the right side of each eye would be affected. Theoretically, therefore, if the light were shined only upon the right side of the retina of either eye, there would be a loss of both the direct and consensual reflexes in each eye. Usually there is enough reflections of light within the eye to stimulate both sides of the retina. Consequently, the direct and consensual reflexes would remain intact in each eye. A left homonomous hemianopsia would be present.

Lesion III. There would be no loss of light pupillary reflexes since the afferent fibers of the light reflex have left the optic tract before the geniculate body. A left homonomous hemianopsia would be present.

Lesion IV. The afferent fibers are affected in the pretectal area. Both the light reflexes for each eye would be lost. This lesion would not affect the near (accommodative) reflex. This type of response is called the Argyll Robertson pupil.

Lesion V. The efferent fibers to the right eye are involved. Therefore, there would be no direct or consensual reflex present in the right eye. The direct and consensual reflexes would remain intact in the left eye.

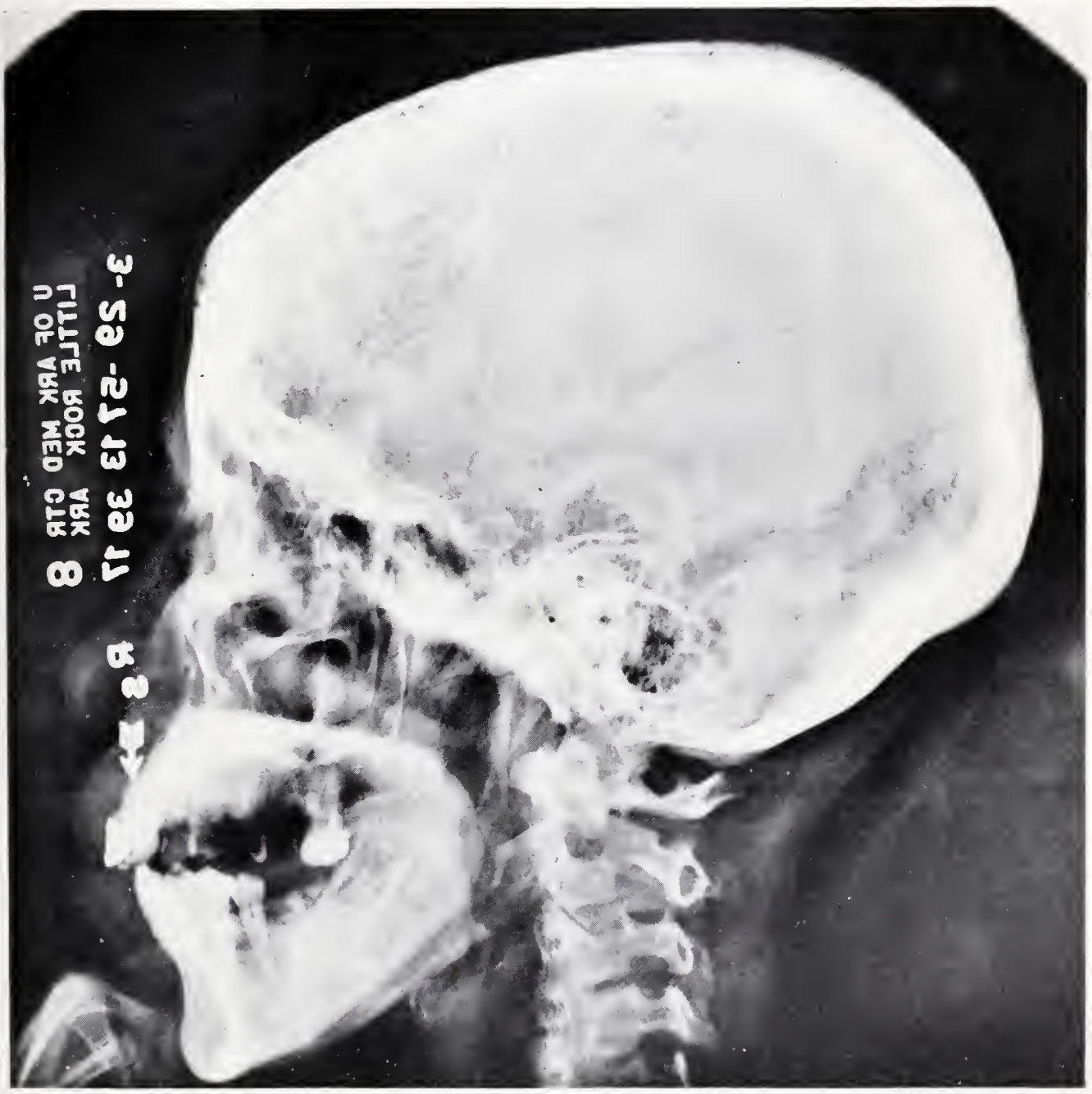
SUMMARY

The anatomy and physiology of the pupil are reviewed. A description of the pathways for the pupillary light reflex is given. Reference is made to the common causes of pupillary abnormalities. The specific changes occurring with lesions along the reflex tract are discussed.

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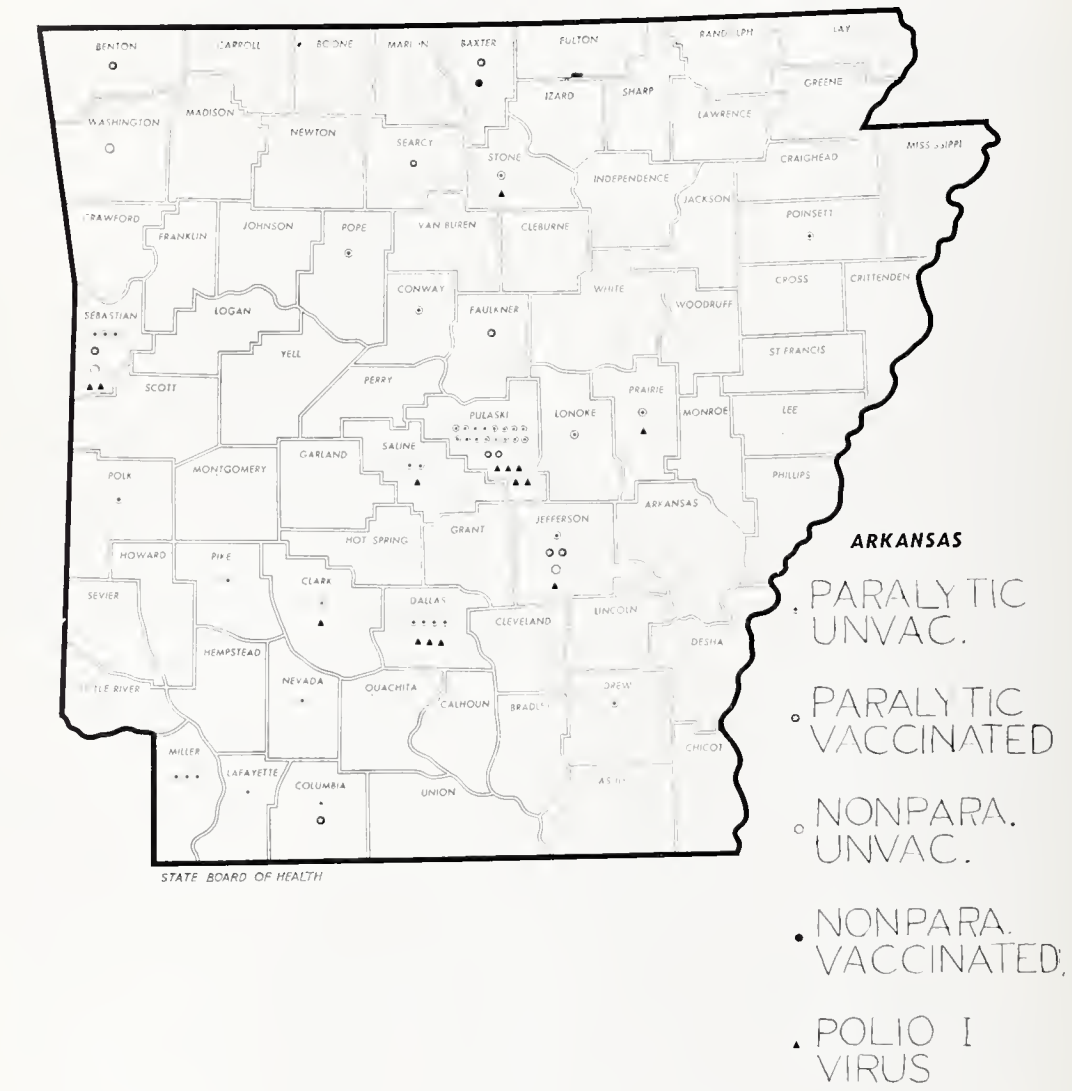
What Is Your Diagnosis?



FOR ANSWER SEE PAGE 173

Arkansas Public Health at a Glance

POLIO I VIRUS ISOLATIONS AND POLIO CASES FROM 1-1-59 TO 6-11-59



For the past three years the Communicable Disease Division of the Arkansas State Health Department has requested certain bodily specimens for laboratory examination to aid in establishing definitive diagnoses of the virus diseases of the central nervous system. The physicians and hospitals have been most cooperative, especially where a diagnosis of poliomyelitis was being considered. The accompanying map gives the results of fecal specimens submitted in 1959, through July 11.

It is to be noted that only Polio Type I virus (15) has been isolated this year. A few isolations *other than polio* virus have been reported, but these are not completely identified. These results are of great importance and indicate that Polio Type I virus is well disseminated in Arkansas. Following is a summary of the reported virus isolations from fecal specimens in 1957 and 1958.

	1957	1958
Polio I	9	7
Polio II	—	—
Polio III	5	2

In 1957, in addition, one each Coxsackie A-2, A-10, B-4, ECHO-6, and ECHO-9 were found.

Editorial

The Patient and Nursing Care

ALFRED KAHN, JR., M.D.

Perhaps in the beginning one ought to stress that the patient is a sick human being who has come to the medical profession seeking help. As such, his sickness or problem will definitely affect his personality and mood. Or more simply stated, a sick person may seem cranky or hostile; this is the result of illness. As members of the medical profession, it is the duty of the physician and nurse to adapt their affect and demeanor to his needs. This in no sense implies that the patient's treatment is abridged to suit his whim. Under no circumstances should the patient's antagonism arouse in the professional staff a sense of hostility; he is sick, they are not.

Generally, the care received by patients is good. From the patient's point of view, one might speculate on what the patient's reaction is to having his care performed by so many different individuals. To a large extent in the modern hospital this is unavoidable, but on the other side of the coin, if you were ill now would you like to have a separate attendant take your temperature, bring your breakfast, help with a bed bath, bring medications, and so on. The patient care could be performed by as many as 10 different individuals during the course of 24 hours. This is neither condemnation nor is it praise for the skillful integration of hospital duties; I simply wonder if it's in the best interest of the patient. Are a few familiar faces better than a host of strangers in the sickroom?

Mechanically, the patient has never had such good care. The graduate nurse of today is capable of performing intravenous punctures, adjusting and administering oxygen, employing mechanical lifting devices, estimating the effects of innumerable new drugs, measuring sugar and other chemicals in body fluids, etc. Yet there is a paradox in this situation. As our nurses have become more highly skilled through successive improvements in our nursing schools, and better and more intensive teaching methods, it seems to remove them farther and farther away from the patient. This is not through any desire of the nurses, it simply seems to have evolved. Our highly skilled graduate nurse now spends a somewhat disproportionate amount of time at the nurse's desk charting, checking the number of drugs in the locker, answering phone calls, and performing general administrative duties. The nursing duties are then assigned to aides, orderlies, and technicians of various sorts. In practice, the graduate nurse becomes a ward administrator performing nonnursing duties. Would it not be wise to train technicians to perform all charting duties? Could not qualified aides perform other administrative duties? The highly technically qualified nurse could then be freed for more direct nursing care.

Perhaps a natural sequitur to this discussion is whether there should be several types of nurses' training. In effect this is already being done. For example, in addition to the 3-year course for registered nurses, would it be desirable to offer a one-year course and a two-year course? There are many specific nursing tasks that a one-year trainee could be taught. A two-year trainee would be given more patient responsibility. Appropriate salary differentials for higher degrees of training, as well as more responsibilities, would be the rewards for longer periods of training and greater and wider proficiency.

No profession evolves and grows in isolation. The impact of developments in other fields has profound effects in its allied disciplines. Advances in medical research have brought new problems into its sister field of nursing. Techniques for performing chest surgery, repairing the interior of malformed hearts, replacement of diseased blood vessels, and other

notable advances by our surgical colleagues bring with them new problems in the care of the patient. This not only implies the mastery of new marvels of mechanical ingenuity in drains, airways, and other devices, but it also implies more understanding of the altered anatomy and physiology brought on by surgery. These patients often teeter more perilously close to the thin border between life and death than in the older, simpler, more standardized surgical procedure. The postoperative period is more critical than ever before, and the patient is in the nurse's hands; she must recognize the danger signals and be ready to counter an emergency. This implies a flexibility in the schools of nurse training so that they will be able to teach new procedures as they move from the research laboratory to the fields of practical medicine.

Lastly, there is the impact of developments in non-allied fields on the nursing profession. While infectious disease seems to be waning as a medical problem, accidents, especially in automobiles, are becoming of paramount importance. People in accidents are often critically hurt and need urgent attention. To nurses who practice in a large city hospital this care of the injured may be perfunctory, as there are many folks to fall back on. But many will work in small communities, and next to the physician who employs them, they are the best qualified persons to give life saving first aid measures. An accident can happen in any community; a life can be saved through intelligently applied first aid. Ancillary to this general topic is the matter of industrial nursing. The decentralization of industry has brought factories to many communities, and industrial nursing is an important need. This is a somewhat new field of vast importance. The prompt attention to minor ills by a skilled nurse can save many man hours; economically, a good job attendance record means a financial benefit to the employer and employee. Good industrial nursing often helps the patient with a minor ill keep from developing a major sickness.

The leaders in the nursing profession deserve high tribute. Our ever decreasing mortality and morbidity rates are in a large measure attributable to the fine work of the nursing profession. Some of these observations are in controversial areas. These unresolved problems cannot be solved by ignoring them; they require incessant exposure and discussion and work.

RESOLUTION

Austin Ross Hederick, M.D., age 92 years, born May 23, 1867, Pikeville, Tennessee.

After his father's death early in life his mother later married Dr. Lowe and they moved to Coal Hill, Arkansas. After some travel and mining in the west and mid-west, Dr. Hederick returned to Coal Hill to become a student of medicine under the tutorage of his stepfather and then married Miss Rowena Rogers who survives him.

He alternated between his practice and schooling and finally graduated, from what is now known as the University of Tennessee, in 1902. He served in World War I and was discharged with the rank of Major.

He was interested in everything for the betterment of our existence here, but schools, especially high school and its problems, was his major. He served on the school board of Booneville Public Schools for nearly 40 years, serving as president most of this time.

God in His infinite wisdom saw fit to call this good man to his last reward and death came April 27, 1959. He was a real friend to us and all with whom he came in contact, ready to serve at all times. He had battled the Grim Reaper many, many times, and in such a long life of 60 odd years in practice only he could know the disappointments that came in a losing battle.

It is our hope that we who are left to carry on, will hold high the banner of our profession and with energy and progressiveness go forward to answer the call of duty as did this man.

Dr. Hederick lived a long life of usefulness and the only words that can be said to fully describe this good man is that "He lived and served."

C. A. Henry, M.D.
S. P. McConnell, M.D.
Charles M. Smith, M.D., Sec'y.
Logan County Medical Society

The Month in Washington

Washington, D. C. — President Eisenhower's power of veto has been a powerful weapon in his fight against big spending programs of the Democrats.

His outstanding use of the power so far in this session of Congress was the veto of the Democratic, catch-all $1,375,000,000 housing bill. Mr. Eisenhower said the measure was extravagant and inflationary. He warned that the fight against inflation could not be won "if we add one spending program to another without thought of how they are going to be paid for and invite deficits in times of general prosperity."

The housing bill included three provisions of interest to the medical profession. One provision, endorsed by the American Medical Association, would have authorized Federal Housing Administration guarantees of loans for construction of proprietary nursing homes. The second provision would have authorized direct federal loans for housing for interns and nurses. The third would have authorized both such loans and guarantees for housing for elderly persons.

Mr. Eisenhower objected to direct loans for housing for the aged. But he directed his main attack against the legislation's public housing and urban renewal provisions.

The President also vetoed a wheat price support bill which, he charged, "would probably increase . . . the cost of the present excessively expensive wheat program."

The threat of a veto also caused the Democrats to retreat and cut back their airport construction legislation.

These actions improved prospects for a balanced, or near-balanced, budget in the current fiscal year. Another factor working for a balanced budget is the economic upsurge which means more federal revenue than originally estimated.

But Congress voted more for medical research than the President wanted. However, all of it may not be spent because the President has the authority to hold back part of it.

The Senate voted $481 million and the House, $344 million, for the National Institutes of Health — as against $294 million requested by Mr. Eisenhower. It was mandatory that a House-Senate Conference Committee, in working out a compromise between the House and Senate figures, approve a larger amount than the President requested.

The House Ways and Means Committee held hearings on the controversial Forand bill which would finance medical and hospital care of the aged through the social security system. Witnesses for the medical profession vigorously opposed the legislation. Dr. Leonard Larson, Chairman of the AMA Board of Trustees, and Dr. Frederick C. Swartz, Chairman of the AMA Committee on Aging, presented the AMA's views.

Representatives of various state medical societies either testified or presented statements in opposition to the legislation which would be financed through higher social security taxes and which would cost about $2 billion a year.

On another legislative front, AMA witnesses — Dr. George M. Fister, a member of the AMA Board of Trustees and Chairman of the AMA Council on Legislative Activities, and Dr. Vincent W. Archer, a member of the AMA House of Delegates and the AMA Committee on Federal Medical Services — testified before the Senate Finance Committee in support of a House-approved bill (Keogh-Simpson) that would provide tax deferrals for self-employed persons who invest in qualified pension or retirement plans.

Dr. Fister testified that high taxes and inflated living costs make it "difficult for the self-employed person to set aside adequate funds for retirement without a tax deferment similar to that available for corporate employees."

Experts from 17 nations gave favorable reports on use of live polio virus vaccine at a week's conference sponsored by the World Health Organization and the Pan American Health Organization.

However, the 61 experts conceded in a statement summarizing the conference discussions that problems remain in use of the vaccine which is given orally. Their main concern was with "the very difficult problems in the development control and evaluation of the safety and effectiveness" of the live vaccine. They also

recognized that "the use of a product that spreads beyond those originally vaccinated represents a radical departure from present practices in human preventive medicine."

An advisory committee of the U. S. Public Health Service recommended a fourth shot of Salk polio vaccine as routine for children and adults under 40 years of age. The report also said that Salk vaccine shots could be beneficial for persons over 40 but was "less urgent" because they had polio less frequently than younger people.

Surgeon General Leroy E. Burney of the Public Health Service also issued an urgent warning that tragic polio outbreaks might occur this year if communities didn't push polio vaccination campaigns.

The Medical Society of the District of Columbia adopted a relative value scale of fees expressed in units rather than dollars. The basic unit of 1.0 is a routine office visit. The other relative values for medical services are multiples of the basic unit. For example: an appendectomy, 30 units; allergy skin tests, 2.0 units per 10 tests with a maximum of 15 units for multiple tests; anesthesia, first half-hour or any fraction thereof, 4.0 units.

It is not mandatory that the District Medical Society members charge fees conforming to the relative value scale. It was designed to show the relative value of a physician's services, particularly for health insurance purposes.

The AMA House of Delegates unanimously approved last year the study of relative value scales by state medical societies.

ANNOUNCEMENTS

American College of Surgeons

The 45th annual Clinical Congress of the American College of Surgeons will be held in Atlantic City, New Jersey, September 28 through October 2, 1959.

Arkansas Academy of General Practice

Amail Chudy, M.D., Chairman, Subcommittee on Annual Program, has announced the following speakers for the Arkansas Academy of General Practice Meeting October 14 and 15, Lafayette Hotel, Little Rock.

C. Arden Miller, M. D., University of Kansas; Louis F. Rittelmeyer, Jr., M. D., University of Mississippi; Isadore Dyer, M. D., Tulane University; Leo W. Fabian, M. D., University of Mississippi; Edward A. Marshall, M. D., Cleveland, Ohio; William A. Hudson, M. D., Detroit, Michigan; and Fount Richardson, M. D., Fayetteville, Arkansas, President, American Academy of General Practice.

All physicians are welcome.

The Tennessee Valley Medical Assembly

The Tennessee Valley Medical Assembly will meet on September 28 and 29, 1959, at Read House, Chattanooga, Tennessee. The Assembly is sponsored by Chattanooga and Hamilton County Medical Society. For further information contact Guy M. Francis, M. D., Chairman, Assembly Committee, 109 Medical Arts Bldg., Chattanooga 2, Tennessee.

Southwestern Surgical Congress Second Annual Essay Contest

The Southwestern Surgical Congress has announced its Second Annual Essay Contest.

The Contest is open to internes, residents and M. D.'s in active training in general surgery or the surgical specialties, who have been in private practice no more than three years beyond completion of resident, interne and post-graduate training. Eligibility is further restricted to those individuals who are within the geographical confines of the Southwestern Surgical Congress.

The subject material for the competitive essays shall be either pure investigative or scientific research, or clinical research and investigation, which shall consist wholly or largely of the essayist's contributions.

The first prize will be $300.00, second prize $200.00, and third prize $100.00. The essayists whose papers are selected to be read will be the invited guests of the Southwestern Surgical Congress to their Twelfth Annual Meeting in Las Vegas, Nevada, March 28, 29, 30, 31, 1960,

this to include the essayists' wives. This includes lodging, meals and the social functions of the organization, but does not provide transportation to and from the meeting.

Interested persons please contact John A. Growdon, M. D., 1324 Professional Building, Kansas City, Missouri.

University of Texas Postgraduate School of Medicine Course in Cardiology

The University of Texas Postgraduate School of Medicine has announced the James J. and Una Truitt Lecturer for the year 1959: Paul Wood, O. B. E., M. D., (Melbourne), F. R. C. P., (London), Director, Institute of Cardiology, London; Physician, National Heart Hospital; Physician in Charge of the Cardiac Department, Brompton Hospital.

The distinguished guest lecturer from London, England, will present a course in cardiology at the Texas Medical Center, December 7 through 11, 1959.

For further information write: Office of the Dean, The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

International Congress Of Gastroenterology

VIth Meeting of the "Association des Societes Nationales Europeenes et Mediterraneennes de Gastro-Enterologie" (A.S.N.E.M.G.E.)

LEYDEN, April 20th-24th, 1960

Patron: His Royal Highness the Prince of the Netherlands

To all scientific workers in the field of gastroenterology: The International Congress of Gastroenterology, organized by the Society of Netherlands Gastroenterologists, will be held from 20th-24th April, 1960, in Leyden, Netherland's oldest university town. The organizing committee hereby invites all scientific workers in this field to contribute by means of a lecture to the international exchange of ideas, research and experience, which is the main purpose of the Congress.

American College of Obstetricians And Gynecologists District V Meeting

District V of the American College of Obstetricians and Gynecologists will hold its annual meeting in the Statler Hilton Hotel, Detroit, November 18-21. The district comprises Indiana, Kentucky, Michigan, Ohio and Ontario.

Twenty-Ninth Annual Fall Conference Of the Oklahoma City Clinical Society

The Oklahoma City Clinical Society will open its twenty-ninth annual three day Conference at the Biltmore Hotel on October 26, 1959.

Kansas City Southwest Clinical Society-Annual Fall Clinical Conference

The 37th annual Fall Clinical Conference of the Kansas City Southwest Clinical Society will be held October 5, 6, 7, and 8, 1959, at the Hotel President.

Contributors to the American Medical Education Foundation

From the State of Arkansas, June, 1959

Dr. LeMon Clark, Fayetteville	$25.00
Mrs. Hugh R. Edwards, Searcy	10.00
Jean C. Gladden, Harrison	15.00
John T. Gray, Jonesboro	10.00
Mrs. R. M. Logue, Little Rock	5.00
Porter R. Rodgers, Searcy	20.00
Floyd A. Smith, Jr., Trumann	5.00
J. B. Stewart, Fort Smith	25.00
	$115.00

Answer to What Is Your Diagnosis

SYPHILITIC OSTEOMYELITIS

This 46 year old colored female came in with a chief complaint of diplopia and headaches. Physical examination revealed large perforation of the nasal septum, hepatomegaly. The cardiovascular system was within normal limits.

Laboratory data revealed spinal fluid VDRL to be positive to 32 dilutions.

Skull films reveal a rather characteristic diffuse lytic process of the frontal bones (in this case without prominent bony sclerosis) with associated defects in the superior portion of the parietal bones consistent with luetic osteomyelitis.

PERSONALS AND NEWS ITEMS

Dr. R. B. Robins, Camden physician recently elected to the AMA Board of Trustees, spoke to the Camden Lions Club on June 17. His subject was "The Old Age Problem".

Dr. Martha Ann Hutson, resident in the Department of Pediatrics at the University Hospital, was married in July to Grady Glen Fincher, of Waldo, Arkansas.

An office has been established by Dr. Lloyd F. Gregory in the Spring River Memorial Clinic at Imboden, Arkansas. He has, for the past two years, practiced medicine in North Little Rock, Arkansas.

Dr. Paul Gray's Hospital, in Batesville, Arkansas, has announced the association of Dr. Gilbert Evans, who will join in the practice of general medicine, surgery and anesthesiology.

The opening of an office in Decatur, Arkansas, has been announced by Dr. Edward N. McCollum.

Dr. E. A. Shaneyfelt has become associated with Dr. J. M. Hestir in the Hestir Clinic at DeWitt, Arkansas.

The practice of Dr. T. C. Swinyar, of Benton, who is now doing surgery residence work at the VA Hospital, Little Rock, has been taken over by Dr. M. Wayne Reynolds, formerly of Denver. The Swinyar family will continue living in Benton.

Dr. J. M. Roy has returned to private practice in Forrest City. He opened his newly remodeled offices in July, 1959.

A Mead Johnson award, for one year of training in general practice at the Arkansas Academy of General Practice, in Little Rock, was awarded to Dr. J. W. Vinzant, of Little Rock, in July, 1959.

Medical duties have been begun by Dr. T. H. Pye in the Sparkman Clinic at Sparkman, Arkansas. Dr. Pye succeeds Dr. William Haynie who has left to take additional medical training.

Dr. John Miller spoke June 21, 1959, at Camden, Arkansas, and showed slides of his recent visit to the San Blas Islands off the coast of Panama. The purpose of this visit was to do medical work in cooperation with the educational and evangelistic missionaries.

During July, 1959, Dr. R. B. Robins, of Camden, Arkansas, spent a week in England, studying their medical program.

An office was opened on August 3, in Ola, Arkansas, by Dr. James O. Pennington, who completed his internship at the Arkansas Baptist Hospital on July 1.

Glenn Thomas, State Representative for the National Foundation, has announced the appointment of Dr. Curtis Clark, of Sheridan, Arkansas, as the Chairman of the Grant County Chapter of the National Foundation.

Proceedings of Societies

"The Plight of the Medical Center" was the subject for discussion at the Pulaski County Medical Society meeting on June 9, 1959. Speakers included Dr. Douglas Lawrason, Mr. Dean Dauley, and Dr. Charles Henry.

The Seventh Rural Health Conference was held in the Ballroom of the Marion Hotel July 30 and 31. The theme for the Conference was "New Era of Aging". The Hon. Orval E. Faubus spoke at the Conference, July 30, the title of his speech being "The Golden Years".

New Members . . .

Dr. Roy Mason is a new member of the Sebastian County Medical Society. He is a native of Tennessee and was graduated from the University of Tennessee

Medical School at Memphis in 1957. Dr. Mason is associated with Dr. Don Meador in the general practice of medicine and surgery, with offices at 3911 North "O" Street, Fort Smith.

The Pulaski County Medical Society has added several physicians to its roster of members:

Dr. Hans B. Molholm, 1931 graduate of Harvard Medical School. He is Director of Research and Education at the Arkansas State Hospital in Little Rock and Associate Clinical Professor of Psychiatry at the University of Arkansas Medical Center. Prior to coming to Little Rock, Dr. Molholm practiced in Massachusetts, Ohio, and Missouri.

Dr. Bruce E. Schratz, a native Arkansan who was graduated from the University of Arkansas School of Medicine in 1956. After completing his internship, Dr. Schratz served two years in the United States Air Force at the Connally AFB, Waco, Texas. He returned to Little Rock in August for the general practice of medicine and surgery.

Dr. Charles S. Betts, who attended High School in El Dorado, Arkansas, received a B.A. degree from Vanderbilt University and an M.D. degree from Vanderbilt Medical School at Nashville, Tennessee, in 1952. Dr. Betts served in the U.S. Army in 1952 and 1953, being stationed at Brooke Hospital in San Antonio, and Camp Rucker, Alabama. From 1952 until 1956, he was at the Mayo Clinic and then at St. Elizabeth's Hospital until 1957. He was with the University of Maryland Psychiatric Institute in Baltimore prior to coming to the University of Arkansas Medical Center in 1958. Dr. Betts is Assistant Professor of Psychiatry at the Medical School.

Dr. Robert Pinnell, who was born in New Mexico, received his preliminary education in Oklahoma and was graduated from the University of Arkansas School of Medicine in 1938. Dr. Pinnell practiced in Calexico, California from 1947 until 1956. He is now specializing in Anesthesiology in Little Rock.

Dr. Charles Dwight Dodson, an anesthesiologist with offices at St. Vincent's Infirmary, Little Rock. Dr. Dodson was born in Wright City, Oklahoma, received a B.S. degree from the University at Fayetteville and was graduated from the University of Arkansas School of Medicine at Little Rock in 1955. He served his internship and residency at St. Vincent's.

Dr. Otto Maria Spurny, a native of Vienna, Austria. Dr. Spurny was educated in secondary schools in Vienna and was graduated from the Vienna Medical School in 1951. In 1956, Dr. Spurny received an M.D. degree from the University of Arkansas School of Medicine; has served as instructor at the University Medical Center in Little Rock for several years and is Director of the Arkansas Heart Disease Control Clinic. Dr. Spurny's specialty is internal medicine.

Dr. Delmar Goode. A native of Mississippi, Dr. Goode received his preliminary education in that State and was graduated from Medical School in Tennessee in 1920. He is Associate Clinical Professor of Psychiatry at the University of Arkansas School of Medicine and has been associated with the Veterans Administration since 1923.

Dr. Everett M. McClintock, who recently moved to Little Rock for the practice of Obstetrics and Gynecology. Dr. McClintock was born in Memphis and received a B.A. degree from Washington and Lee University in 1951. In 1955 he was graduated from the University of Arkansas School of Medicine and completed a residency in OB-GYN at Washington University School of Medicine in St. Louis. Dr. McClintock's office is at 5606 West Markham in Little Rock.

Book Reviews

FUNDAMENTALS OF OTOLARYNGOLOGY, by Lawrence R. Boies, M.D., Professor of Otolaryngology. Chairman, Department of Otolaryngology, University of Minnesota Medical School. Third Edition, Illustrated, Pp. 491, 1959. W. B. Saunders Company, Philadelphia and London.

This textbook is well illustrated and easy to read. It is not sufficiently detailed to be of any real value to the otolaryngologist but is an excellent book for medical students and the general physician. Sections of the book were written by Dr. Boies' associates. Because of the wide interest in rectification of hearing loss when there is no nerve involvement, the new surgical procedures are discussed in moderate detail and are well presented. This book is recommended as a good primer on Otology.

DISEASES OF METABOLISM. Detailed Methods of Diagnosis and Treatment edited by Garfield G. Duncan, M.D., Professor of Medicine, University of Pennsylvania; Director of Medical Divisions, Pennsylvania Hospital and The Benjamin Franklin Clinic. Fourth Edition, Illustrated, Pp. 1073, 1959. W. B. Saunders Company, Philadelphia and London.

This is considered by the medical profession as being an outstanding text in its field. It is exceedingly well written and the contributors aside from Dr. Duncan are outstanding. The field of metabolic diseases is well covered although, obviously, all of the advances in this field cannot be encompassed in one textbook of 1073 pages. The section on diabetes is particularly good although the rapid progress in developing oral antibiotics will necessarily render portions of this obsolescent. In general, this book is excellent and is highly recommended to medical students and the practicing physician.

PRACTICAL NOTES ON NURSING PROCEDURES. By Jessie D. Britten, S.R.N., Examiner to the General Nursing Council for England and Wales. Illustrated, Pp. 192, 1959, Second Edition. The Williams & Wilkins Company, Baltimore 2, Maryland. $4.00.

This book of nursing techniques is concise and well written. It is filled with excellent sketches. The text is frequently in outline form, and in a short book this is to be desired. Perhaps the one thing that stands out in the reviewer's mind is that all of these excellent textbooks of nursing technique are to some extent wasted, as is the nurse's education, in our modern American system of hospital care. All too frequently the nurse's training is not utilized, but instead she is bound to a desk writing notes and transcribing on the charts — which any briefly trained person with secretarial experience could perform.

TUBERCULOSIS ABSTRACTS

Sponsored by
The Arkansas Tuberculosis Association

GEORGE N. BEDELL, M.D., AND
PAUL M. SEEBOHM, M.D.,
The Journal of the American Medical Association,
April 11, 1959.

Treatment of Pulmonary Emphysema

Generalized emphysema can be without apparent cause or secondary to asthma, bronchiectasis, tuberculosis or other chronic pulmonary diseases. Treatment should be directed toward the prevention of further tissue destruction. The patient should be kept active and working.

Pulmonary emphysema is a disease characterized pathologically by loss of elastic tissue and destruction of alveolar walls in the lung leading to the formation of enlarged air sacs. The physiological abnormalities are uneven distribution of inspired air, expiratory airway obstruction, loss of alveolar capillary surface available for diffusion, reduction in the vascular bed, and, eventually, pulmonary hypertension and cor pulmonale. Localized emphysema consists of one or more greatly enlarged alveoli in an otherwise normal lung. When cystic areas interfere with lung function, they can be removed successfully. The generalized disease can be of unknown cause, or it can result from bronchial asthma, bronchiectasis, tuberculosis, silicosis, and other types of chronic lung disease.

In the treatment of the patient with emphysema it is extremely important to make a clear distinction between bronchial asthma with emphysema and emphysema with chronic bronchitis.

In the patient with bronchial asthma and emphysema the disease usually starts with attacks of paroxysmal dyspnea, frequently at night. The patient may have rhinitis and nasal polyps, sinusitis and eosinophilia. The administration of epinephrine (adrenalin) may improve the vital capacity, maximal breathing capacity and maximal flow rates. The patient responds well to steroid therapy. By way of contrast the patient with primary emphysema early

in his illness has dyspnea only with exertion; does not have rhinitis, sinusitis or eosinophilia; has a minimal response to epinephrine and to steroid therapy. In both, the chest roentgenogram is similar, showing hyperaeration.

AIMS OF TREATMENT

In the patient with emphysema the primary aims of treatment are to keep the patient active, to preserve as much lung tissue as possible, and to maintain comfort. The main threat to the patient is further destruction of lung tissue by infection. Therefore, all respiratory infections should be treated vigorously. Sputum and blood should be cultured. Antibiotic therapy must be directed toward eradicating the organism causing the disturbance. While awaiting the culture report, we usually use this plan: If the patient is not sensitive to penicillin and has fever we treat him with procaine penicillin G, 300,000 units given every 12 hours, on the theory that this may be a pneumococcus type of infection. If he is sensitive to penicillin erythromycin is used. If the patient has no fever but is coughing up purulent sputum erythromycin is given, the dosage being 250 to 500 mg. four times a day. Antibiotic therapy should be continued at least 10 to 14 days.

The next objective of treatment is to keep the patient active and if possible at work. The patient should be urged to exert himself to the extent of his ability and told that shortness of breath acts as a warning sign and means the time to rest is at hand. He need not fear dyspnea, for in itself it is not harmful.

The next aim of therapy is to make the patient comfortable. One of the primary problems is to clear the tracheobronchial tree of thick, tenacious sticky secretions. A saturated solution of potassium iodide is given in a dose of 15 drops in a half glass of water three or four times a day, to make it easier for the patient to expectorate. Cough mixtures containing codeine, morphine, or meperidine (Demerol) hydrochloride, should be avoided. Meperidine, especially, dries secretions and increases the difficulty of clearing the tracheobronchial tree. If bronchodilators are given, they should be given locally and systemically.

TYPES OF TREATMENT

Sedatives. If the patient can be made to breathe comfortably, he does not need sedatives, which depress the respiratory center. Avoid the use of morphine and codeine. Phenobarbital in a dose of 30 to 60 mg. or chloral hydrate in a dose of 1 to 3 gm. will give mild sedation without respiratory center depression.

Oxygen Therapy. Oxygen therapy should be used in the patient with emphysema who is acutely ill with a respiratory infection if hypoxemia is a significant problem. It is useful in the late stages of the disease to make the patient more comfortable.

Breathing Exercises. The success of breathing exercises depends on the enthusiasm of the physician. Many patients use these exercises faithfully for a while, and then abandon them.

Intermittent Positive-Pressure Breathing. The initial enthusiasm for this device has now worn off, although it is helpful in some cases.

Steroid Therapy. Steroids are of little value in the treatment of primary emphysema. Patients with bronchial asthma respond well to steroid therapy. This reemphasizes the importance of discovering the cause of the patient's emphysema. If emphysema is secondary to other lung diseases, the primary treatment should be aimed at the underlying lung disease.

Pneumoperitoneum. The administration of air into the peritoneal cavity to raise the diaphragm and improve the expansion of the lung has been advocated but there is little objective evidence to support it.

Artificial Ventilation with a Respirator. The respirator does have a definite place in the treatment of patients with respiratory acidosis. It is most useful in patients who have severe emphysema and an acute infection. One disadvantage is that many patients have great difficulty in adjusting their normal ventilation to that of the respirator. Adequate respiratory care requires trained physicians, nurses, and attendants.

Smoking. Some workers have suggested smoking is a cause of pulmonary emphysema. However, severe emphysema does occur in a few patients who have been non-

smokers. This point needs further study. We urge patients to stop smoking.

Surgery. Surgical removal of part of the lung in emphysema has been recommended. The theory is that if a portion of the lung is cystic and over-distended it prevents proper function of adjacent normal lung tissue. This has been demonstrated in patients with localized cysts of the lung. In the generalized form of the disease, however, we do not recommend surgical removal of parts of the lung.

SUMMARY AND CONCLUSIONS

It is important to differentiate primary emphysema from emphysema secondary to other types of lung disease. When emphysema is secondary to asthma or other lung disease, therapy should be directed to the primary disease. When emphysema exists as a primary disorder, the aims of therapy are to preserve lung tissue, keep the patient active, and make him comfortable.

Preservation of lung tissue is done by treating all respiratory infections vigorously. The patient with emphysema may exert himself to the point of dyspnea. He can be made more comfortable by means of properly selected drugs. The responsibility of the physician is to give the patient clear understanding of his disorder and to help him regulate his life. In emphysema, as in other diseases, the patient needs a physician and not a gadget.

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Tailoring Insulin, Insulin-Substitute Tablets, and Diet**

ALBERT WEINSTEIN, M.D., F.A.C.P.*

There are certain basic fundamentals which we recognize in the management of a diabetic patient. About half of all diabetics can be regulated by restricted diets without the addition of insulin. This requires in some a considerable amount of self-control since diabetes is notoriously a disease of the obese, a group who got that way from excessive eating and whose eating habits consequently are out-of-line with the restricted eating pattern imposed by the presence of diabetes.

For a diabetic diet to be satisfactory, it must fulfill certain basic requirements.

(1) The urine must be rendered free of sugar, since this is the reason for the diet, in the first place.

(2) The patient's weight must adjust to normal average levels. If the patient is over-weight his body weight should progressively be reduced to calculated average-normal-levels. If the patient is under-weight, below the desired level, the weight should increase to the desired level.

(3) The patient should receive from his diet adequate energy to perform his daily tasks. This varies widely depending on whether his or her occupation is one demanding full physical activity and many calories, or conversely a sedentary job with a lower caloric demand.

(4) His appetite must be satisfied. Although this is the least important from the doctor's viewpoint, as a requirement of a satisfactory diet, it is one which is most important from the patient's viewpoint. Often this can be neatly accomplished by the feeding of large amounts of low-carbohydrate-containing, bulky vegetables, and a fair amount of fat, which has a high satiety value, if cholesterol intake is no problem.

If the above four requirements are not met by the restricted diet, then it is an inadequate treatment and must be supplemented by the use of insulin.

When we use insulin it is necessary to remember that unmodified insulin or solutions of zinc-insulin crystals have an action which begins in 15-30 minutes, reaches its peak in 1-2 hours, and has a duration of action of 2-4 hours. All of the modified insulins begin to act after a certain latent period following their injection, usually 2-4 hours, and have a peak reaction for 18 hours, and a total duration of action of 4-36 hours.

Therefore, unmodified insulin is used for the treatment of diabetic emergencies, acidosis and coma, the patient needing help promptly. The modified insulins are used for less urgent situations; namely, the patient who cannot be regulated properly by diet alone, the diabetic with chronic infections, hyperthyroidism, or any other complication, such as pregnancy where alterations in the diabetic load are produced.

In an attempt to simplify and tailor the insulin type to be used, I would like to recommend that any diabetic other than those in the emergency group, be placed on NPH insulin. This insulin was developed by Hagedorn and his group of workers in Denmark. Its action begins in 1-2 hours, and has a duration of 18-24

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**Presented at The Arkansas Academy of General Practice Meeting, Little Rock, Arkansas, October 16, 1958.

hours. It has the advantage of beginning to act faster than Protamine-Zinc insulin, which begins to react in 2-4 hours, and has a rather profound reaction 12-20 hours after it is given. Therefore, with Protamine-zinc insulin poor control in the morning hours is often seen and a high incidence of early morning pre-breakfast reactions are encountered. In addition, perhaps because of its slow reaction, the hypoglycemia symptomatology following Protamine-Zinc insulin are not the usual symptoms of classical hypoglycemia, but rather are characterized by the occurrence of headache, weakness, and depression. Consequently, these symptoms may be misinterpreted by the unwary.

The reaction of NPH insulin is essentially the same as that of a mixture, two parts of regular insulin with one part of Protamine-Zinc insulin. Incidentally, this mixture was a popular method of insulin use for more than ten years.

Globin insulin, a combination of insulin, plus the globin fraction of hemoglobin, begins to react in 2-3 hours after injection and has a somewhat shorter period of duration of action. This is of distinct advantage and value when one is treating an elderly diabetic with coronary or cerebral arteriosclerosis where nocturnal hypoglycemia might be extremely unfortunate. Therefore, this insulin is of greatest value and has its sole use, in my opinion, in this group of elderly diabetics where vascular complications are always hanging over the head of the therapist.

The Lente insulin group is a type of insulin different in chemical structure from the other insulins described. It is an acetate radicle combined with the insulin molecule and an excess of zinc. Its action is of the prolonged variety beginning 2-4 hours after injection, reaching a peak in 8-12 hours, and having a duration of 24-36 hours. Its main and chief indication is in the diabetic who is having local or systemic allergy to his injected protamine containing insulin. Lente insulin is by virtue of its chemical structure less apt to produce these allergic reactions. Therefore, Lente insulin, has its place in the treatment of "allergic diabetes." One remembers also that if the basis of the allergy is the hog, insulin can be obtained prepared exclusively from beef pancreas, or if the allergy is beef, hog pancreas insulin can be obtained—ordinary insulin mixtures contain both of these sources. We have also believed that boiling ordinary unmodified insulins for one hour would remove its antigenic properties. Recently, however, this concept has been re-investigated and disproved.

To make our tailoring process even more simple, one might categorically decide that—

(1) Unmodified insulin be used for diabetic emergencies.

(2) NPH insulin for all other cases, except where early morning hypoglycemia is bothersome, or allergic reactions occur, when globin insulin or Lente insulin is to be employed.

If a diabetic requires more than 40 units of NPH insulin daily, it is rare that good control can be obtained unless certain amounts of regular or unmodified insulin are incorporated in the same syringe with the NPH insulin. This is indicated if the urine tested before the noon meal contains sugar. It simply means that the force of the NPH immediate reaction is not sufficiently great to take care of the food eaten at breakfast time. If NPH is given alone in large enough amounts to clear this pre-lunch glycosuria often hypoglycemia will occur in the mid-afternoon or early evening hours. It is good policy under these conditions to recommend a small (15 gm) carbohydrate serving at 3:00 P.M. and at bed-time. This is usually a glass of milk, which contains 12 grams of carbohydrate, 7 grams of protein, and 9 grams of fat—total calories about 160. Crackers or cereal may be given in addition, if needed.

WHAT SHOULD BE OUR ATTITUDE TOWARD ORINASE?

As judged by statements published by those (Upjohn Company), who market Orinase, more than 300,000 diabetics are now taking this drug. If one per cent of our population is diabetic, let us say 1,800,000, and if only one-half of our patients need insulin, 900,000, then one-third of our insulin requiring diabetics

are already on Orinase, if the advertised figures are correct. This is not true in my personal practice.

Orinase is a wonderful example of laboratory and clinical investigation resulting in an extremely useful therapeutic agent. Most important of all, it may point the way toward an even more helpful and effective oral hypoglycemia agent. Its advertised prime indication of maturity onset type of diabetes where less than 40 units of insulin is necessary for control, immediately encompasses a great many middle aged and elderly obese diabetics, who could manage their diabetes satisfactorily by diet restriction alone. If, however, they insist on Orinase, then it is a luxury method which they may employ. NPH insulin sells for $1.50 for 10 cc. of U-40; accordingly, if the patient takes, let us say, 30 units of insulin a day, a 5-cent piece covers the cost, exclusive of a $2.50 insulin syringe, which should last a year, and hypo needles which sell for 25 cents apiece and with care should last for months. In other words, 7-8 cents a day will cover all insulin and hypodermic expenses. Orinase sells for $6.75 for 50, 500-milligram tablets, or about 13 cents a tablet. The average patient needs three or four a day. Therefore, the average Orinase cost is 50 cents a day, 6-7 times the cost of insulin. Over a year's time this amounts to about $175.00. Of course, if the patient has no financial problems, this is no item to worry with.

Orinase can be used successfully in this selected group of patients. It must be tailored, however. I have caused uncomfortable hypoglycemia by routinely beginning 3 grams a day as advocated. I prefer to give 1.5 grams a day and move up or down with my dosage level, as the necessity indicates. In fortunate circumstances, 500 milligrams to 1 gram serves as the basic daily allotment.

One has to be on guard when he uses Orinase, since the patient relieved of the every day disciplinary measure of taking a hypodermic, often becomes lax, eating more than his diet allows, and gets fat, to the detriment of his diabetes. In addition, there are occasional patients who, after varying periods of time, lose their responsiveness to Orinase and have to return to insulin.

Already there are other oral agent derivatives of Sulfonamides, which are being given clinical trial in the management of diabetic patients. Another company, (Eli Lilly), has made compound 26169 — Chlorpropamide available for clinical trial. It has similar indications and limitations seen in carbutamide and tolbutamide. It is too early to pass judgment on this agent, but recent personal communications from those who have used this agent extensively, suggest that Chlorpropamide is equal to, if not superior to, Orinase in its activity. In addition, this company is dealing with another substance, W.P. 40, Meta-hexamide, which is also receiving clinical trial.

The U. S. Vitamin Corporation has made available another hypoglycemic agent, D.B.I. a non-sulfonylurea compound, phenethyl-diguanide. This substance has a definite hypoglycemia action. At the moment it has proved of particular help in the management of "brittle diabetics." In these cases the patient fluctuates between hypoglycemia and hyperglycemia in spite of various manipulations of diet and insulin dosage. The patients are usually very young, ordinarily under the age of 30. D.B.I. when used in combination with diet and insulin results in smooth regulation in the few selected cases in which it has been tried. Its use will be watched with interest in the coming months.

My prediction is that the future holds in store for us an even-better-than Orinase oral hypoglycemic agent. At the moment, it is probably the best of the available oral compounds.

Let us look for a moment at the problem of diet. Generally speaking, the average doctor has more trouble with this aspect of diabetic management than all others. I suspect that the reason is that in the past the calculation of calories and the allocation of the three major food groups—protein, fat and carbohydrate, has been too finely drawn. We no longer weigh diets except in the occasional very young patient. It is true also that when one sees a diet reported to the first decimal place, he can be certain that someone is unrealistic in his understanding as to how the diabetic actually lives.

Naturally the average doctor cannot prescribe a diet as completely as a trained dietitian, but if a few fundamentals are remembered, it is not too complex.

(1) The average person needs approximately 15 calories per pound. This will take care of the ordinary day-in-and-day-out activity. Naturally a laborer may well need twice this amount, but observation of a patient's weight gives the clue as to whether calories need be adjusted up or down, to keep pace with the actual caloric need.

(2) The protein content of the diet is approximately 0.5 grams per pound. This amount will take care of the metabolic needs for tissue metabolism unless the patient has unusual metabolic demands as a consequence of fever, or rapid growth as seen in the adolescent.

(3) The fat allotment is 50-100 grams, depending, in the main, on whether or not the patient is undernourished or over-weight.

(4) The balance of the calculated calories is given in carbohydrate which will average 150-200 grams in the average patient.

After the dietary figures are calculated, one simply refers to a standard text book of medicine or dietetics, or better yet to the prepared dietary charts furnished by several of the manufacturers of insulin and other diabetic armamentaria, and then he has at once for his patient a detailed list of foods with sample menus and the important list of equivalent foods so that free substitution is available and consequently the diet may be varied and made pleasant and attractive. Just so the diet is within 5 per cent of the calculations of either the total calories or the protein-fat-carbohydrate content, it will usually suffice.

(5) Then observation of the patient's weight, urinalysis, blood sugar, appetite control and work performance will guide the physician into the use of insulin, the decrease or increase in the caloric intake, the addition of Orinase, or any alterations in the diet that may become evident as necessary. This is the tailoring process and it is the observation of an individual being fitted into a general plan of diet calculation.

I must add a warning. Patients quickly learn food values and become pretty accurate calorie counters. They delight in asking the doctor about calories and food values, the figures, which they already well know. Their purpose is to find out how sharp their doctor is and to see if he really knows anything about the care of diabetics. If the patient is able to outmaneuver his doctor in this discussion, he then, as it were, climbs into the front seat of the therapeutic machine, slips under the steering mechanism and begins to drive the omnibus. The poor physician now is eased into the back seat and must sit there and suffer the tortures of the back-seat passenger as he watches an inexperienced driver thread his way through a c o m p l e x therapeutic traffic jam.

The moral is, don't be out-maneuvered. It is easy to remember a few simple dietary facts.

(1) Food values are listed in per cent, which of course is based on 100 grams of food, the amount delivered in two tablespoons of cooked vegetables.

(2) The leafy vegetables, which grow above the ground, are the 3 per cent group, and usually can be eaten by the diabetic without restriction. They serve the excellent role of not only filling up the stomach and satisfying appetite, but also supplying minerals and vitamins.

(3) The vegetables which grow in the ground are the 10-15 per cent group.

(4) The 20 per cent vegetables are irish potatoes, rice, dried beans, and corn.

(5) An egg supplies Ehrlich's magic figures 6-0-6; 6 grams each of protein, and fat, none of carbohydrate.

(6) A strip of bacon, the number 13, one gram of protein, 3 grams of fat.

(7) A slice of bread, a serving of cereal, a glass of milk, or 1½ liberal tablespoon of the starchy vegetables or commercial ice-cream, all yield the same amount of carbohydrate—15 grams.

(8) Milk contains 3 per cent protein, 4 per cent fat and 5 per cent carbohydrate, 3-4-5.

(9) An average serving of meat, beef or chicken contains per ounce, protein 7 grams, fat 5 grams, for the total calories of 75.

What attitude should we take in regard to this ambition of rendering the urine free of sugar?

In 1931 Stolte (1) advocated an undisciplined method of handling diabetics; namely, that the regulation be characterized by an avoidance of symptomatic acidosis and that no regard be given otherwise to the status of the urinalysis. This suggestion was promoted in this country by Tolstoi.

On the other side of the argument stand most of the schools of thought that have been concerned for years with the management of large numbers of diabetic patients and perhaps even more important concerned with the teaching of thousands of medical students and doctors who have wide future responsibilities in the care of diabetics.

There are some, such as Dolger (2), who are of the opinion that good control does not prevent the development of vascular complications. However, the report by Wilson, Root and Marable in 1951 (3) showing that among 247 well-regulated diabetics, none had any real physical trouble, provides impressive contrary evidence. Duncan makes an apt statement relative to the free-diet scheme of Stolte and Tolstoi, "(it) fosters the maintenance of any unphysiologic state." "It appears unescapable from accumulating clinical data that a penalty will eventually be extracted, a penalty which otherwise might be prevented in some and postponed in others."

F. N. Allen states in his foreword to Duncan's textbook, "Therefore for many years I have promised every cooperative patient a full life-time of health, and I have had a standing challenge to family physicians and the various consultants who see these patients, to report a single occurrence of any of the familiar complications, and nobody as yet has shown an exception."

The extreme attitude is climaxed in a report called, "Hyperglycemia, the Diabetic's Best Friend," which appeared in the Southern Medical Journal in February 1958 (4). The thesis therein outlined gave such a casual attitude toward attempts at regulation that the same issue of the Journal carried a critical editorial of such a plan. I merely am pointing up that there seems to be no limit to the swing of the pendulum in therapeutic plans when once it starts swinging.

I feel that the average doctor in practice should make a studious attempt to keep the urine of his diabetic patients free of sugar. If he does this, he can then lie down at night and sleep with a clear conscience in the knowledge that he has done all in his power to bring his diabetic patients into the metabolic status that exists in the non-diabetic. Certainly producing normal physiologic conditions in a patient brings that individual into a status from whence he departed when the complication of diabetes originally arose.

No discussion of the general problem of diabetes is complete without some comment on the problem of the care of the feet. These days diabetics rarely die of acidosis or coma, but are surviving to experience the vascular complications of this disorder. As mentioned above, good regulation of the disease may save the patient from some of the hazards met with in the brain, eyes, kidneys or heart. The feet remain an area where attention to simple matters is of the greatest importance. A diabetic must be meticulous in the matter of keeping his feet clean. They should be washed twice daily. At night, after washing, lubrication of the skin with a bland oily preparation prevents drying and cracking of the skin, which may be the forerunner of infection. Corns should not be pared. Toe nails should not be clipped too closely, so that the skin may not be cut. Circular garters should not be worn by men or women. We have had considerable trouble lately by the tightly fitted elastic-top sock. If the sock or stocking has a hole in the toe or heel, throw it away, or darn it carefully. Rough repairs may result in a point of abrasion and infection. A diabetic should be careful not to sit for long periods of time with the legs crossed so as to impair the circulation. Trichophytosis should not be treated with salicylic acid containing compounds, which will abrade the skin. Cuts in the skin of the feet should never be treated with iodine, which is too caustic; use alcohol mixtures which do not harm the skin. Naturally the underlying arteriosclerotic process leaves the skin vulnerable to infection, due to the arterial

ischemia, and therefore, the above mentioned conservative procedures may delay the day of complicating problems in the legs.

Not only are the arterial problems important, but varicose veins with venous stasis is another problem where prevention of secondary changes in the skin can be more easily prevented than cured.

Formerly an infected toe usually meant an amputation above the knee. Recently with improvement of surgical technic and the availability of antibiotics has permitted successful amputation of a single digit or more than one toe with preservation of the foot. But who would willingly get cornered into such a predicament of amputation that might be delayed or even prevented by some of the simple measures discussed above?

May I conclude by saying that today the average doctor can handle adequately essentially every diabetic he meets in his practice. Twenty-five years ago, diabetic patients felt that they had to be seen by a diabetic specialist. Certainly there are occasional cases, such as pregnancy and coma, which require unusual metabolic insight and help in their management, but the average alert practitioner can now do the job in essentially all cases.

The management of a diabetic in the last decade has been simplified and the use of insulin can be even more simplified as I have tried to indicate today. I warn against over-simplification in the treatment of this disorder. This, too, can lead to sins of omission and commission. I suspect that always will we have the problems of tailoring insulin, diet and in general the specific care for each patient, rather than having a general plan that provides for all our patients.

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Some Preliminary Considerations in the Treatment of Snake Bite

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In the area of care for the snake bite victim, there are several considerations which should be carefully weighed before instituting treatment. It is unfortunate for the average doctor that these considerations are fundamental in the field of herpetology; it is very rare to find an individual who shows even a remote interest in that fascinating field.

The Ophidians (the order to which snakes belong) are divided into two major groups, poisonous and non-poisonous. In the United States there are only twenty-one poisonous species, nineteen of which belong to the family Crotalidae (pit vipers) and one to the family Elapidae (coral snake) in which two species are represented (1). However, only eighteen present a threat to man.

The primary consideration before beginning treatment is to determine if the reptile is poisonous. This can quite accurately be ascertained by examination of the wound. With the exception of the coral snake, there will be fang marks present. If the strike is delivered headon, there will be two puncture wounds visible, if delivered at an angle, only one will be present. A non-venomous snake will leave a series of teeth marks, usually in the form of the letter "U".

A second consideration and one most often forgotten, is the time of year. Snakes hibernate through the winter (2). During this time they are not feeding and the venom not being periodically expelled in the process of obtaining food becomes very concentrated. Upon leaving hibernation, the first few strikes deliver a very potent dose. A person bitten in the early spring must be treated much more vigorously than one bitten in midsummer or early fall.

The size of the snake is a determining factor. It is true that the reptile is seldom seen and if so, the patients' account is often far from reliable. A workable estimate can be obtained by measuring the distance between fang marks when two are present. If the distance is a quarter of an inch, obviously the serpent could not have been very large (3).

The location of the bite determines the seriousness of the outcome. If the venom is delivered in a poorly vascularized area, the absorption is slow and toxic symptom less acute. If intravenous envenomization should occur, death maybe instantaneous (4).

The age and size of the patient may decide the gravity of the situation. A more vigorous treatment regime is indicated when the victim is very young or very old. These age groups are very susceptible to serious aftermath (5).

The type of venom should be known. With the exception of the coral snake, this poses no problem in the United States. The venom of the Crotalidae (pit vipers) is hemotoxic in action and by using the commercially available antivenin, the effects can be reversed.

The Elapidae (the family which includes the cobra) is represented in the United States by a single genus, Micrurus, with two species being present (1). These serpents are the coral snakes (harlequin, beaded, or false king) occurring in the southern sections of the United States. Because of their small size they cannot inflict a wound except on the fingers or toes or in areas where the skin is loose. They do not possess fangs but rigidly set teeth in the upper jaw which are grooved for deposition of venom. Due to the dentition, the snake grabs hold of the skin and chews savagely, inflicting several wounds before turning loose (6).

The venom of these snakes is neurotoxic in action (5). Drop for drop it is more deadly than that of the Crotalidae. Due to its small size and nocturnal habits, fatalities from its bite are rare. A heavy

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work glove or loosely fitting trouser leggings will give adequate protection. The occasional victims of the coral snake are children, who not recognizing the danger, handle the brightly colored reptile. Treatment is unsatisfactory because of the time elapse between the accident and definitive care.

SUMMARY

The important points in basic herpetology are considered with reference to treatment for snake bite.

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Cutaneous Reactions to Some Drugs Currently in Use**

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Cutaneous eruptions and fever are the most frequent signs of adverse reactions to the systemic administration of drugs. The fact that a cutaneous eruption might represent a reaction to a drug is often overlooked by the practicing physician because either he does not recognize that the reaction is one ordinarily associated with one of the drugs being administered to the patient or he fails to appreciate that this unanticipated cutaneous response could represent a drug reaction. The development of cutaneous eruptions during medical treatment of patients must be viewed with suspicion, and consideration should be given to the possible causal relationship between the drug therapy and the recently developed cutaneous eruption.

The physician who prescribes drugs is repeatedly and inevitably confronted with the problem of recognizing and managing the side effects produced by such drugs. Almost all persons are exposed to a great number of prescribed and proprietary remedies; whereas most of these drugs are tolerated by most persons, they may produce various cutaneous reactions in certain patients. Drug reactions are an increasing hazard of modern therapy because of the extraordinary number of preparations available and the number of organ systems that may be affected.

The types of adverse reactions that may develop in a given patient depend on a number of factors but probably are concerned most intimately with the biologic variation of the patient himself and with the basic chemical structure of the drug. The latter factor is of great importance for, as clinicians observing the various morphologic changes of the skin, we begin to associate one or more cutaneous patterns with a particular drug.

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The problem of drug allergy is one of bewildering complexity. Perhaps as confusing as any part of the subject are the definitions of terms employed. Although in the past all adverse cutaneous eruptions have been included as a part of allergic sensitization, Rostenberg and Webster (1) properly have emphasized that not all such eruptions encountered during the administration of drugs are on an allergic basis but may be caused by pharmacologic, competitive enzymatic, intolerant and idiosyncratic, ecologic and biotrophic mechanisms.

Definition of some of the terms employed in describing eruptions associated with the administration of drugs adds to the understanding of the problem. *Dermatitis medicamentosa* is an eruption induced by the internal action of a drug, whether this drug is ingested, absorbed through the skin or mucosa, or given hypodermically. By this definition, the local reactions induced by drugs applied to the skin are excluded and are considered rather as a part of *dermatitis venenata.* Although frequent reference is made to toxic drug eruptions, it would be better to refer more specifically to *toxicity* as that state which develops through normal pharmacologic mechanisms when large doses or overdoses of drugs are administered. The patient is thus acting in a normal manner to excessive doses of drugs.

Two terms that have been used synonymously in the past but that are probably best differentiated are "intolerance" and "idiosyncrasy." By *intolerance* is meant a quantitative deviation in response to a drug, which is in contradistinction to *idiosyncrasy,* in which an abnormal qualitative response is present. For example, it is known that ringing in the ears will develop in all patients if they ingest sufficient quantities of quinine; however, this ringing develops in some persons after the ingestion of only relatively small

amounts of the drug. This quantitative difference in response is referred to as *intolerance*. By comparison, *idiosyncrasy* can be defined as an abnormal qualitative response to a specific exogenous stimulus, either chemical or physical, and such response is not based on the quantity of the drug involved or on an antigen-antibody mechanism. An inborn susceptibility or predisposition to this type of reaction is thought to exist.

It is possible to separate *hypersensitivity*, or *true allergy*, from the aforementioned groups, for these reactions are thought to exist because of specifically acquired alterations in the capacity of the patient to react that are brought about by means of an antibody mechanism. Although the presence of antibodies in all true allergic drug reactions cannot be demonstrated, the assumption that antibodies are present permits inclusion of such responses in this group.

With a desire to ameliorate all the symptoms presented by the patient, the physician is likely to treat the cutaneous eruption symptomatically rather than to make a critical survey of the patient's medicinal regimen and to eliminate selectively the possible offending agents. In the presence of a progressive and overwhelming cutaneous reaction, it is probably a wise decision to discontinue use of all the medicaments being administered and to substitute pharmacologically similar drugs for those which are threatening the welfare of the patient. Cessation of drug therapy is compulsory if one is to interrupt the progressive cutaneous involvement caused by drug reactions.

It may be necessary to rely heavily on the historical sequence of events to implicate an offending drug. Proof of true hypersensitivity as determined by skin testing may be lacking. To duplicate the experience by reintroducing the suspected drug to establish with certainty the etiologic relationship between the drug and the adverse reaction is fraught with danger, and it is well to be satisfied with partial proof from the historical evidence alone.

This paper represents an effort to discuss the cutaneous reactions produced by some drugs in current use. There is no implication that the incidence of adverse reactions in this particular group of drugs is greater than that in other agents not discussed. The group of drugs in question, some frequently and others infrequently employed, caused cutaneous reactions that could be studied clinically and recorded photographically.

PENICILLIN

Numerous adverse reactions have occurred following use of penicillin. Many of these untoward responses are cutaneous reactions of short duration and of little significance (2-4). By far the commonest of these have been fever, urticaria and angioneurotic edema. Recent investigations (5) using penicillinase indicate that minute amounts of penicillin contained in dairy products might transform an acute urticarial drug reaction that otherwise would be short-lived into a chronic problem by the constant reexposure of the patient to the penicillin in these foods.

Severe exfoliative reactions have appeared after use of penicillin, and only recently have physicians come to appreciate more fully the occurrence of sudden death in some patients receiving penicillin. As approximately 600 tons of penicillin was produced for human use in the years 1945, 1946 and 1947 (2,000,000 average daily doses of 300,000 units each), it is surprising that reactions are as infrequent as records would indicate (6).

The following case demonstrates how financial catastrophe can occur from inability to work and depletion of financial reserves because of medical expense following development of an exfoliative reaction to penicillin.

Case 1. — When this 59-year-old man was admitted to the hospital, he exhibited a generalized exfoliative dermatitis that had been present for 6 months. During this time, he had been employed for only 2 months part time, and he stated that his work had been substandard. Two previous periods of hospitalization had been required.

Some 7 months before admission, he had received an injection of penicillin for a "cold." Two weeks later, an eruption appeared on his left forearm; this became a generalized exfoliative reaction in

the subsequent 2 weeks and persisted to the present.

The patient had taken penicillin previously without a reaction and had not recognized any adverse reactions to other drugs he had received. There was no atopy in the patient's history or in the family history.

Needless to say, the hazards of administration of drugs are sufficiently great that penicillin should not be administered indiscriminately and without justification.

SULFONAMIDE COMPOUNDS

The cutaneous reactions encountered in the past in association with sulfonamides can be expected to be seen in the future. Now available are products that combine several sulfa drugs and other agents, which produce prolonged and adequate blood levels after a single dose. Lehr (7) classified the serious reactions to sulfa drugs that may be anticipated as (1) urinary complications, (2) reactions of hypersensitivity (fever and cutaneous eruptions), (3) hematopoietic complications and (4), hepatitis.

Sulfamethoxypyridazine (kynex, medicil) is one of the new long-acting sulfa preparations that allow maintenance of adequate blood levels during the 24-hour period after ingestion of a single dose. Recently reviewed (8) were reactions associated with this drug, which included fever, headache, dizziness, gastrointestinal disturbances with abdominal pain and vomiting, hematopoietic complications such as leukopenia and a hemolytic process, and bullous and maculopapular cutaneous eruptions; a fixed eruption in one patient and the development of solar sensitivity in another were noted after use of this drug. Three cases of myocarditis (9) and a case of aplastic anemia (10) following the use of sulfamethoxypyridazine also have been reported.

Sulfisoxazole (gantrisin) is one of the sulfonamides commonly employed in the treatment of urinary infections. The following case illustrates the problem of photosensitivity frequently encountered after use of the sulfonamides.

Case 2.—A 70-year-old man complained of erythema, edema and pruritus of the exposed parts of the face, neck, forearms and hands, most pronounced on the left side, of 4 days' duration (fig. 1). The patient had recognized that exposure to the sun made his cutaneous eruption worse. The drugs recently ingested included plexonal (containing dihydroergotamine, scopolamine and barbiturates) for hypertension, and sulfisoxazole and penicillin for a urinary infection. He had stopped taking all drugs 2 days prior to his visit to the Mayo Clinic.



Fig. 1 (case 2). Reaction of photosensitivity due to sulfisoxazole, with accentuation of the process on the dorsum of the left hand and the left side of the face, where increased exposure to the sun occurred while the patient was driving his car.

Because photosensitivity has been recognized as one of the reactions to sulfonamides, it was assumed that the sulfisoxazole was responsible for the eruption. The dermatitis disappeared after use of mild soothing treatments. Administration of plexonal subsequently was reinstituted without untoward reactions.

Salicylazosulfapyridine (azulfidine) often is employed in the treatment of chronic ulcerative colitis. Because of its poor absorption from the intestine, only low levels are achieved in the blood and, thus, one would anticipate that only a few reactions would occur. One such patient recently seen had a reaction resembling erythema multiforme.

Case 3.—A 43-year-old man had suffered from chronic ulcerative colitis for 7 years. His therapeutic program included dietary measures, salicylazosulfapyridine given parenterally, extra rest, and use of belladonna and pentobarbital (nembu-

donna). Two weeks prior to his visit to the clinic, the colitis flared, and he accordingly increased his daily intake of salicylazosulfapyridine to 50 to 60 gm.; 4 days later, an asymptomatic cutaneous reaction developed on the neck and upper part of the trunk and gradually increased in extent.

Examination disclosed erythematous annular lesions, 2 to 4 cm. in diameter, symmetrically distributed over the face, neck, shoulders and arms (fig. 2). The

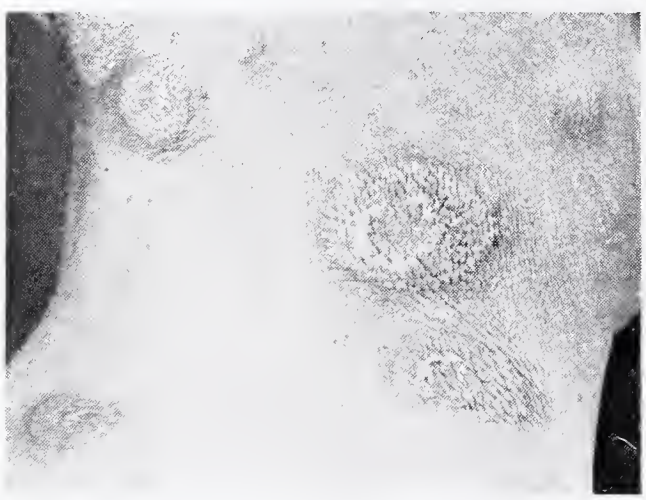


Fig. 2 (case 3). Erythema multiforme secondary to use of salicylazosulfapyridine for chronic ulcerative colitis.

outer half of each lesion showed severe edema of the tissues, producing a "cobblestone" appearance that followed the natural markings of the skin. The central portions of the lesions were undergoing involution, with remittent postinflammatory hyperpigmentation and scaling. The concomitant presence of these two processes produced a ringed appearance of the lesions. The salicylazosulfapyridine was considered responsible for the eruption; 48 hours after use of this drug was discontinued, the eruption disappeared.

SYNTHETIC ANTIMALARIALS

During World War II, considerable experience was gained with the synthetic antimalarial drugs because of the limited availability of quinine. Quinacrine was the first of these preparations employed, and the early experience indicated that this drug was not without serious and even fatal reactions (11). During early use of this agent, it was not fully appreciated that a new disease encountered in New Guinea, the so-called New Guinea lichen planus, was in reality a lichenoid reaction to quinacrine (12). Chloroquine (aralen) and hydroxychloroquine (plaquenil) subsequently have been introduced as drugs with the same pharmacologic actions but with fewer associated adverse reactions.

The therapeutic indications for this group of drugs have spread beyond their original use as antimalarials. Page (13) stimulated interest in quinacrine when he reported its use in the treatment of discoid lupus erythematosus. Quinacrine and, subsequently, chloroquine and hydroxychloroquine have been used in the treatment of other dermatologic diseases, such as lichen planus, psoriasis and pemphigus foliaceus (14). Dubois (15) also advocated the use of quinacrine in systemic lupus erythematosus. With appreciation of the role of the synthetic antimalarials as anti-inflammatory drugs (16), these medicaments now are being used in the treatment of rheumatoid arthritis (17).

Patients who take quinacrine have a yellow hue to the skin, which should not be confused with jaundice. The sclerae, in contrast to those in patients who have jaundice, remain white. At times, a bluish-black pigmentation of the oral mucosa is noted, but this is not an indication for discontinuing therapy. Under ultraviolet light, a yellow-green fluorescence of the fingernails can be noted. More recently, discrete yellowish to white deposits have been recognized in the corneal epithelium of several patients receiving chloroquine (18).

Common to this group of drugs is the development of a lichenoid reaction that simulates lichen planus and that resembles similar eruptions noted after use of heavy metals, especially gold and bismuth. The eruption consists of reddish-brown to violaceous, flat-topped papules that may be discrete or confluent and that are located primarily over the extremities, about the wrists and ankles, and on the face and neck. In contrast to the more strict localization of idiopathic lichen planus to the wrists and ankles, the lichenoid drug reactions of these antimalarial agents tend to be more widespread in their cutaneous involvement. Considerable hyperpigmentation usually is associated. When treatment with the drug is

discontinued, the eruption disappears relatively slowly in contrast to other forms of drug reactions.

Erythematous, somewhat urticarial, maculopapular eruptions also have been reported after use of the antimalarials (14).

Case 4.—A 36-year-old woman with psoriasis of 8 years' duration previously had received a variety of treatments without benefit. In an effort to diminish the psoriasis, chloroquine in a dose of 1 tablet per day had been administered for 2 weeks. Three days after this treatment was discontinued, an urticarial reaction appeared on the posterior portion of the upper part of the arms, the thighs and the lower part of the legs. With soothing treatment, the cutaneous lesions resolved rapidly.

ATARACTICS

To a great extent by popular demand of the patient, the tranquilizers have become part of the therapeutic armamentarium of the physician. The tranquilizers, perhaps better referred to as ataractics, act on the subcortical part of the brain, the midbrain and the diencephalon, without cortical suppression, to produce a calm serenity; this is in contrast to sedatives previously employed, which tended to depress the brain as a whole and to produce a detached, confused state (19). It is well documented that these drugs will cause various adverse cutaneous reactions, although their frequency admittedly is small.

Their chemical structure and their different pharmacologic actions permit classification of the ataractics into the following groups (20), namely (1) Rauwolfia alkaloids, (2) phenothiazine derivatives, (3) propanediol dicarbamate and (4) diphenylmethane derivatives.

Perhaps best appreciated are those reactions associated with one of the phenothiazine derivatives, namely chlorpromazine hydrochloride (thorazine) (21). Jaundice, as a part of hepatic insufficiency, is one of the dramatic findings that is prima-facie evidence for discontinuing use of this drug. Contact dermatitis from this drug is known to develop in medical personnel who handle it; this is manifested by erythema, edema and pruritus, particularly of the web areas of the fingers and the periorbital tissues of the face. Various erythematous maculopapular eruptions are noted following systemic administration. A photosensitizing effect, not unlike that associated with the sulfonamides, is a relatively frequent occurrence after use of chlorpromazine. Epstein and coworkers (22) were able to induce localized solar sensitivity in nine of 72 patients receiving this drug by merely irradiating specific areas with ultraviolet light. Patients who become photosensitive on administration of chlorpromazine present an erythematous brawny type of edema sharply limited to the regions exposed to the sun (fig. 3). A vesiculobullous component may be associated. It appears that ultraviolet rays shorter than 3100 angstroms are responsible for this reaction of photosensitivity, but the exact mechanism of its production remains obscure.



Fig. 3. Reaction of photosensitivity secondary to use of chlorpromazine. Note the sharp localization of the reaction to areas exposed to the sun, with an absence of reaction in areas protected from the sun.

Reactions to other ataractics have been noted (23). The adverse responses encountered in 6500 patients treated with meprobamate (miltown, equanil) have been reviewed by Charkes (24), who noted the diverse cutaneous patterns that might be seen as a result of administration of this drug. These include erythema-

tous, maculopapular, urticarial, vesicular and pustular lesions, as well as generalized erythema, fixed reactions and purpura. Case 5 illustrates a papulopustular eruption encountered in one of our patients who was receiving meprobamate.

Case 5.—A 53-year-old man presented a painful papulopustular eruption of the trunk. Meprobamate (equanil) had been prescribed because of "nervous tension." After he had taken this drug daily for a month, the afore-mentioned eruption occurred. Use of the drug was stopped, and the lesions disappeared.

Because of a subsequent period of tension, the patient once again took meprobamate; 5 days later, the papulopustular eruption recurred.

A reaction of photosensitivity has been noted with methyprylon (noludar), which belongs to the diphenylmethane group of ataractics.

Case 6.—A 48-year-old woman who had carcinoma of the cervix was given methyprylon because of the tension associated with discovery of this lesion. Following therapy for the malignant lesion, the patient took a vacation in the South for a period of rest and sun bathing. During this time, macular erythema, urticaria and lesions resembling erythema multiforme developed on the face, neck and arms. Use of the drug was stopped, and corticosteroids were administered orally, with rapid clearing of the skin.

The patient subsequently again took methyprylon, with recrudescence of the eruption; use of corticosteroids again suppressed this. Two weeks later, when the patient returned home, exposure to the sun independent of additional ingestion of methyprylon precipitated another flare of the cutaneous eruption.

CHLORAL HYDRATE

My associates and I have employed chloral hydrate in an effort to overcome some of the adverse reactions encountered with some of the derivatives of barbituric acid used as sedatives. It had been our clinical impression that reactions to chloral hydrate seldom, if ever, occurred, but a more critical survey of our patients revealed that reactions to this drug did, indeed, occur from time to time (25).

The commonest adverse reactions to chloral hydrate involve the skin and consist of erythema, scarlatiniform eruptions, urticaria, angioneurotic edema, purpura and eczematoid lesions. Ulcerated lesions of the skin, exfoliative dermatitides, erythema multiforme and fixed drug reactions occur less frequently. In our own experience, the erythematous type of eruption, consisting of the explosive onset of erythema first of the face, neck and thorax, with rapid spread in 12 to 24 hours to the extremities, was most common. The following case indicates the usual findings that might be anticipated in patients displaying this type of reaction.

Case 7.—A 50-year-old man was hospitalized for care of dermatitis of the dorsa of the hands and arms, the face and the legs; this eruption had been present intermittently for an 8-month period. He was the owner of a dry-cleaning establishment, and his work included the handling of cleaning fluids, spotting agents and dyes. He was considered to have an occupational dermatosis due to some contactant in his work.

During the course of his hospital treat-



Fig. 4 (case 7). Severe erythema, edema and local heat of the face, upper extremities and upper part of the trunk, with a rapid onset, constitute the commonest cutaneous pattern seen in patients reacting adversely to chloral hydrate.

ment, erythema of the hands, arms, face and neck, associated with pronounced edema and local heat, developed rapidly over a period of 24 hours (fig. 4). On review of the hospital records, it was noted that he had taken chloral hydrate at bedtime for the 10 days preceding the appearance of the eruption. With the possibility in mind that this eruption might be due to the chloral hydrate, use of this drug was stopped. Some clearing of the skin appeared within 48 hours, and the improvement was hastened by the intravenous use of corticotropin (ACTH). After 10 days, the dermatitis had practically disappeared.

COBALT

A number of hematinics and vitamin-mineral preparations contain cobalt. Sidell and associates (26) pointed out the role of cobalt in producing a folliculopustular reaction of the face and trunk after its oral ingestion. In addition, aggravation of pre-existing acne vulgaris in patients taking this drug has occurred.

A direct relationship is apparent between the severity of the eruption and the size of the total daily dose of cobalt; the reaction usually appears 3 to 10 weeks after treatment with cobalt is initiated, and it disappears in 4 to 6 weeks without other treatment once the administration of cobalt has been discontinued. Systemic use of antibiotics apparently shortens the period of involvement.

Case 8.—A 57-year-old woman had noted increasing exhaustion for several months. Because of a low concentration of hemoglobin, a hematinic (roncovite) containing cobalt was prescribed; 48 hours after the initial dose, a papulopustular eruption developed on the face (fig. 5). Because the eruption gradually became more severe, the patient stopped the medication; the cutaneous lesions slowly disappeared.

PHENYLBUTAZONE (BUTAZOLIDIN)

Phenylbutazone (butazolidin), a drug chemically related to antipyrine, has been employed in the treatment of arthritic and musculoskeletal disorders. Its degree of usefulness has been somewhat curtailed by the development of serious adverse reactions in a considerable proportion of the patients who have taken it (27). The

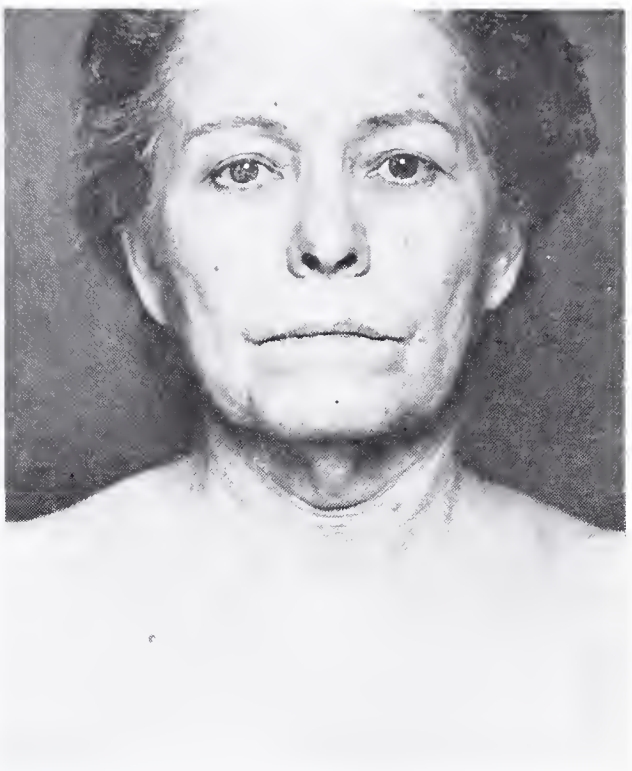


Fig. 5 (case 8). Papulopustular eruption on the face of a patient taking a hematinic containing cobalt.

commonest reaction has been that of retention of water and edema; the most serious reactions are those affecting the hematopoietic system and manifested by thrombocytopenia, leukopenia and agranulocytosis. Cutaneous reactions have occurred in approximately 5 per cent of the patients receiving this drug and have included maculopapular eruptions, urticaria and angioneurotic edema, purpura, erythema multiforme and exfoliative dermatitis.

The following case summarizes the findings in a patient who had a lichenoid drug reaction to phenylbutazone.

Case 9.—A 64-year-old man had experienced aching, stiffness and "jelling" of the joints intermittently for 15 years. Three months prior to the time he was seen in dermatologic consultation, the patient began taking phenylbutazone, with symptomatic relief. One month later, a pruritic papular reaction developed over the forearms and lower part of the legs and gradually spread to involve all portions of his extremities. At about the time the eruption had appeared, the patient had received an injection of compound F into the left elbow joint, but it

was thought that this bore no relationship to the cutaneous eruption.

Examination disclosed a violaceous, papular, lichenoid eruption over the extremities, with accentuation about the elbow and knees (fig. 6). Coalescence of some of the lesions resulted in a reticulated pattern of involvement. Involution of some of the lesions produced hyperpigmentation of the skin. The clinical impression was that of a lichenoid drug reaction, most probably caused by phenylbutazone.

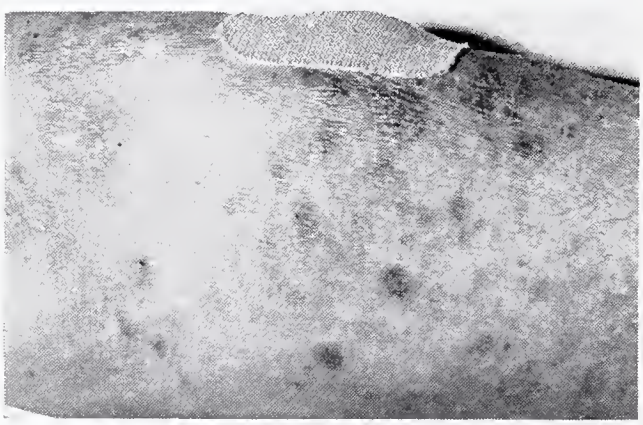


Fig. 6 (case 9). Lichenoid eruption about the elbow of a patient taking phenylbutazone.

CHLOROTHIAZIDE (DIURIL)

Mercury has been employed extensively as a diuretic agent, although always with some trepidation because of its reputation as a toxic agent. Chlorothiazide (diuril) is a non-mercurial agent whose toxic reactions were anticipated in the field of electrolytic imbalance, although clinical experience indicates that these reactions are fairly uncommon. However, with more extensive use of the drugs, reports are being published of cases in which the skin participates in the reaction of hypersensitivity. Rogin (28) reported that a pruritic maculopapular eruption appeared on the extremities in two of three patients taking chlorothiazide, with a similar eruption appearing in a generalized distribution in the third. Jaffe and Kierland (29) reported on two patients who had purpuric eruptions limited primarily to the lower portions of the legs but with lesions present also on the dorsa of the feet and forearms. Purpura in any patient is a rather ominous sign, and its sudden appearance should alert the physician that all is not well. Study of the patient may reveal at times the presence of a systemic disease and, at other times, the fact that the patient is experiencing an adverse reaction to a drug.

HYDRALAZINE (APRESOLINE)

The mimicry of drug reactions for common dermatologic entities has been recognized for years. However, less attention has been focused on the production of complete clinical syndromes induced by the ingestion of drugs. In the past, periarteritis nodosa has been considered as being a secondary reaction to ingestion of sulfonamides. Jaundice resulting from intrahepatic biliary obstruction in association with use of thorazine already has been mentioned. The production of a clinical syndrome resembling lupus erythematosus, even to the presence of positive results of a L. E. clot test, in patients taking hydralazine (apresoline) is striking (30). The following case illustrates the circumstances found in one patient who had a skin eruption that might be confused with the cutaneous signs of lupus erythematosus; positive results of the L. E. clot test tended to strengthen this clinical impression.

Case 10.—A 58-year-old woman had suffered from hypertension for 10 years. Approximately 1 year prior to admission, she began to take apresoline in doses up to 200 mg. four times daily. Three weeks before admission, she began to have nocturnal cramps in the calf muscles, swelling of the feet and hands, and tiredness of the legs. Three days prior to admission, a maculopapular eruption began on the arms and quickly spread to the face. The cutaneous findings on the day of admission consisted of urticarial maculopapular lesions up to 1 cm. in diameter on the face and neck, the V of the thorax, and the extensor surfaces of the arms (fig. 7). The distribution was in those portions of the skin exposed to the sun, making one consider a reaction of photosensitivity. The condition had worsened 3 days later despite discontinuation of use of the drug. Laboratory studies at this time revealed an increased erythrocytic sedimentation rate, grade 1 albuminuria and positive results of a L. E. clot test.

Eleven days after admission, the eruption showed some clearing, more defi-



Fig. 7 (case 10). Hydralazine may produce a clinical syndrome that mimics lupus erythematosus in both the cutaneous reaction produced and the abnormal results of specific laboratory tests.

nitely about the arms; during the next few weeks, the eruption completely faded. At the end of a 2-month period of observation, results of the L. E. clot test changed from positive to negative.

SUMMARY

Cutaneous eruptions are among the commonest adverse reactions encountered during administration of drugs. The variety of the cutaneous patterns seen during the administration of some drugs currently in use is emphasized by case presentations. A high index of suspicion of a possible drug reaction should be maintained in any patient presenting a cutaneous eruption while receiving medicinal therapy.

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What's NEW

Internal Medicine

JOHN S. GRIFFIN, M.D.*

One of the most interesting and exciting recent discoveries in medicine was the isolation and crystallization of aldosterone in 1953 by Simpson and Tait. The chemical structure proved to be the 18-aldehyde of corticosterone. The zona glomerulosa of the adrenal cortex is the principal site of production. The major pathway of biosynthesis is through progesterone and desoxycorticosterone.

Aldosterone is the most potent sodium regulating substance produced in the body. In the adrenalectomized subject aldosterone causes sodium retention and potassium and hydrogen ion excretion. The major clinical stimulus for increase in aldosterone secretion appears to be a decrease in extracellular fluid volume mediated by volume receptors. It is postulated these volume receptors are located in the arterial system above the heart.

In 1954 Conn described the first clinical syndrome associated with hypersecretion of aldosterone by an adrenal adenoma (primary aldosteronism). Aldosterone is assuming importance in the pathologic physiology of such diverse clinical conditions as congestive heart failure with edema, cirrhosis with edema, nephrosis, eclampsia, the immediate post-surgical period, anxiety and stress.

METHODOLOGY

Methods used to quantitate aldosterone in urine and blood are complex and some of them, principally the bioassay procedures, are inadequate for use today. Paper chromatography of the free steroid in two systems with final visual quantitation has been extensively used in clinical studies. This method is not too satisfactory since other steroids are present with aldosterone in the same band. Other more elaborate methods using column chromatography and radioactive labeling are largely research tools.

By the above procedures the 24 hours urinary excretion is between 1 and 15 micrograms. Use of urinary aldosterone levels to estimate adrenal secretion is dangerous because of the many variables such as glomerular filtration rate, tubular reabsorption, and tubular secretion. Few estimations of aldosterone in the peripheral blood have been made but the amount is reported to be about 0.16 micrograms per 100 ml. of plasma.

FACTORS CONTROLLING ALDOSTERONE SECRETION

Aldosterone secretion and electrolyte regulation are relatively free from adenohypophyseal control. Experimental work to date suggests that a trophic factor from the diencephalon may be responsible for aldosterone regulation. It has been proposed that this be called glomerulotropic hormone. ACTH administration causes a moderate increase in secretion of aldosterone. It is not known at this time whether this represents contamination or is an effect of ACTH itself.

VARIOUS STIMULI WHICH AFFECT ALDOSTERONE SECRETION

Many conditions have been found to decrease aldosterone secretion:

1. Low potassium diets.
2. DCA administration.
3. Prednisone administration.
4. Amphenone.
5. Pitressin.
6. Right atrial stretching.
7. Lesions in the diencephalon.

*Texarkana, Arkansas.

Increased output has been observed in:

1. Sodium deprivation.
2. Potassium loading.
3. Oubain administration.
4. Choline deficiency.
5. Experimental hypertension.
6. Blood loss.
7. Decreased extra-cellular fluid.
8. Change from horizontal to the vertical position.
9. Surgery.
10. Constriction of the inferior vena cava.
11. Air encephalography.
12. Anxiety.
13. Pregnancy and toxemia of pregnancy.
14. Cardiac failure.
15. Nephrosis.
16. Essential hypertension.
17. Idiopathic edema.
18. Insulin shock.
19. Idiopathic hypoproteinemia.
20. Cirrhosis of liver.

DISEASES ASSOCIATED WITH ALTERATION OF ALDOSTERONE SECRETION

At present these are divided into three major groups:

1. Primary aldosteronism.
2. Primary hypo-aldosteronism.
3. Secondary aldosteronism.

Primary aldosteronism: This is a syndrome first described by Conn in 1954. The increased secretion of aldosterone is thought to be primary in the adrenal cortex. It has been associated with single or multiple adenomas, adenomatous hyperplasia, diffuse nodular hyperplasias and focal nodular hyperplasia. The syndrome is characterized by headaches, muscle spasms, severe weakness or paralysis of muscle groups, tetany, polyuria (which may be resistant to pitressin), polydipsia, hypertension, alkalosis, hypokaliemia, normal or increased serum sodium, inability to concentrate urine, and mild proteinuria. The renal abnormalities are due to the effect of hypokaliemia on the tubular epithelium. Diuril, which is now frequently used in the treatment of hypertension, will worsen the hypokaliemia and may precipitate considerable weakness. Because of this it may be instrumental in making the diagnosis. The syndrome may be difficult to differentiate from potassium losing nephritis. The triad of hypertension, headaches and hypokaliemia should suggest the diagnosis.

The urinary aldosterone secretion may be normal if only one or two determinations are done; however, if daily levels are run, abnormally high levels will frequently be found. The serum potassium determination and the CO_2 combining power are the most important screening procedures.

Primary hypoaldosteronism: According to present information, isolated aldosterone deficiency is a rarity. A deficiency of both aldosterone and hydrocortisone in varying proportions is the rule, as in Addison's disease.

One case, reported by Hudson, in which there was complete heart block accompanied by Stokes-Adams seizures and hyperpotassemia, appears to satisfy the criteria for primary hypoaldosteronism. Urinary 17-hydroxy-corticosteroids were normal and responded well to ACTH stimulation. There was no increased pigmentation, hypotension, weakness or fatigue usually seen in Addison's disease. There was failure to increase urinary aldosterone output and conserve sodium on a low salt intake. 9-alpha-fluorohydrocortisone, 0.125 mg. per day, caused a fall in serum potassium and abolished the Stokes-Adams attacks.

Secondary aldosteronism: Aldosterone excretion is increased in most of the diseases manifesting edema formation, such as congestive heart failure, decompensated cirrhosis, nephrosis, idiopathic edema of nervous women, and eclampsia. This increase in aldosterone elaboration in these common clinical problems is of great general interest in internal medicine. The mechanism for this increase is not established at the present; however, the prevailing thought is that a decrease of volume in some part of the vascular system, perhaps on arterial side, is responsible for the major stimulus.

Aldosterone excretion has received considerable study in congestive heart failure and the following observations have been made:

CLINICAL SITUATION	URINARY ALDOSTERONE EXCRETION
1) Congestive failure without treatment	Increased
2) Congestive failure treated and improved with digitalis	Decreased
3) Congestive failure on long standing	Increased
4) Congestive failure with bed rest (probably the major reason for improvement of congestive failure with bed rest)	Decreased
5) Congestive failure treated with low salt diet	Increased
6) Congestive failure treated with mercurial diuretics or diuril	Increased

Considerable work is now in progress in the field of synthetic steroid antagonists. In this instance a synthetic steroid is given in an effort to antagonize a natural steroid produced by the adrenal gland. Aldosterone antagonists currently under study are the steroidal spirolactones. It is interesting that these compounds are structurally similar to Strophanthidin-K. When the spirolactones are given to an adrenalectomized animal there is no effect on sodium and potassium excretion. When they are given to a patient in congestive failure or with cirrhotic edema there is a sodium diuresis. When they are given to a subject with primary aldosteronism, a sodium diuresis and potassium retention occurs. These compounds cause a sodium diuresis and potassium retention even when a subject is on a 100 mg. sodium diet and is in a precarious condition of sodium deficit. The present compounds on trial are too toxic for use—causing drowsiness and ataxia.

The possible beneficial effects of a useful aldosterone antagonist are great indeed. They could be used to treat the edematous states. They could be used preoperatively in primary aldosteronism or could be used as a test for primary aldosteronism.

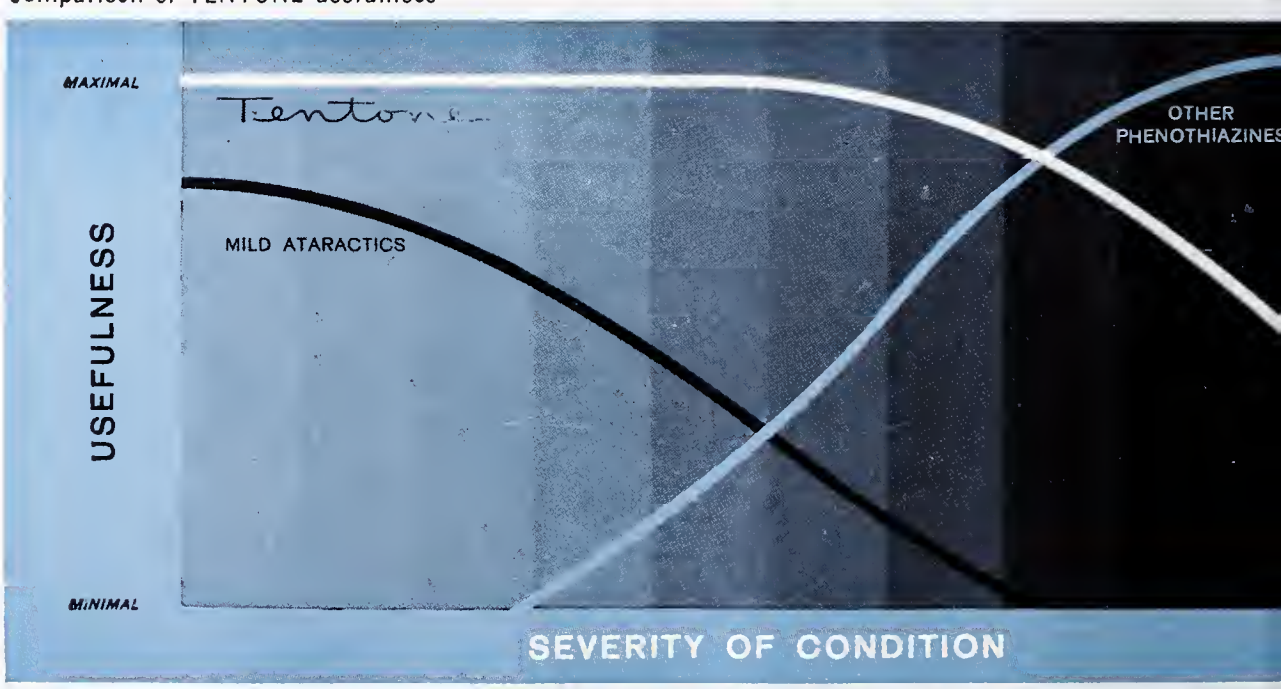
Progress in aldosterone study has been rapid; however, considerable basic information remains to be revealed. There is some promise that practical therapeutic benefits are forth-coming.

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Tuberculous Pericarditis

SEXTON LEWIS, M.D.* AND JAMES E. DOHERTY, M.D.**

INTRODUCTION

Although pericarditis is described in the earliest of medical literature, only during the past ten years has the treatment of tuberculous pericarditis been attended by any reasonable success. Sir William Gull, while demonstrating the autopsy findings to a physician who had missed the diagnosis, once remarked, "Never mind; if you had detected it, you might have treated it." Since the advent of chemotherapy for tuberculosis, the increased interest in cardiovascular surgery, and improved methods of anesthesia, the morbidity and mortality from this form of pericarditis has been greatly reduced. It is the purpose of this paper to briefly review the clinical and laboratory findings in this disease and to discuss some of the considerations in the management of these patients, both from the medical and surgical standpoint. An illustrative case is presented to emphasize combined surgical and medical management.

HISTORY AND CLINICAL PICTURE

Although the disease has been described for many centuries, it was not until 1852 that Rokitansky actually described the pathological findings of tuberculous pericarditis. Osler pointed out that the disease most commonly originates from infected hilar or mediastinal nodes and is practically never primary in the pericardium. The disease varies clinically in the United States and in Europe. In England the average age is 21 years, and in the United States the average age is greater than 40 years. Seventy to 85% of the patients in the United States are males, and greater than 50% of the patients are Negroes. Seven per cent of all cases of pericarditis are tuberculous and, in adults, tuberculosis ranks fourth among the causes of pericarditis, with uremia, myocardial infarction, and non-specific pericarditis being more frequent. Of all autopsy cases with tuberculosis, 4.4% have pericarditis.

Four phases are described in the clinical course of tuberculous pericarditis:

1) The fibrinous phase, when the friction rub is frequently heard.
2) The effusive phase, when tamponade may become manifest.
3) The absorptive phase, when the patient may be mistakenly thought to improve.
4) The constrictive phase, when surgery may be mandatory.

In the individual patient, these various phases are not always evident. The onset of symptoms in patients with tuberculous pericarditis is usually gradual, with a lesser percentage having sudden onset and a significant percentage being picked up by a routine chest x-ray or examination. A sudden onset is occasionally seen in younger white patients and is associated with a better prognosis. The most common presenting complaints of all patients are dyspnea and weakness. Fever, malaise, and anorexia are frequently found. Several types of pain patterns may be experienced. The pericardial pain fibers originate from its diaphragmatic surface, which is supplied by a branch from the left phrenic nerve. Irritation of these fibers may give pain referred to the neck and shoulders. However, the adjacent diaphragm, lung tissue, and chest wall

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are frequently involved by the infectious process, and the patient often complains of precordial or abdominal pain. Extensive involvement of the subepicardial myocardium may cause pain that resembles myocardial infarction or angina pectoris. A pericardial friction rub is heard in about 55% of the patients. The onset is gradual in most patients; and by the time the patient is seen by a physician, the acute or fibrinous phase has passed and the effusive phase is most frequently present. Massive effusions are sometimes observed, and rapid reaccumulation may occur after pericardial paracentesis. The effusions are hemorrhagic is approximately 70% of the cases. The narrow pulse pressure (often only 8-10 mm.Hg.) seen in patients with pericardial effusions reflects the diminished stroke volume and cardiac output responsible for the cardiac symptoms.

Patients with a suspected pericardial effusion should be checked for a "paradoxical" pulse.* Patients with hyperpnea and chronic lung disease, such as pulmonary emphysema, may also have a paradoxical pulse. This is often less than 10-15 mm. and usually presents no problem in diagnosis. Cardiac tamponade is the most frequent cause of dyspnea in patients who are seen early with acute effusions and may represent a medical emergency. When tamponade is present, the pericardial silhouette is enlarged, the neck veins are distended, but the heart is normal in size (actually "compressed" by the effusion), and the venous pressure will be found to be elevated and the circulation time normal or accelerated. Later in the course of the disease, constriction of the pericardium may be the cause for dyspnea, ascites, peripheral edema, and hepatomegaly. The venous pressure remains elevated, and circulation time may be prolonged in this phase due to a markedly diminished cardiac output and/or myocardial damage caused by infiltration of the myocardium by the infectious process. Because of the latter, these patients may actually have an enlarged heart rather than a small heart as has been classically described. Patients who are seen late in their disease frequently present with principal symptoms of ascites, edema, and hepatomegaly and are often diagnosed as having cirrhosis. The resemblance is so striking that cases have been reported in the literature of these patients having portacaval shunts. The presence of "Beck's triad" of (1) distended neck veins, (2) small quiet heart, (3) ascites, edema, and hepatomegaly should make one alert to the diagnosis of constrictive pericarditis.

*This may be determined by applying the blood pressure cuff and raising the mercury column well above the systolic blood pressure. The column is then allowed to drop slowly. The point is noted where the sounds are first heard only during expiration and again when the sounds are first heard during inspiration. The difference between the two represents the degree of paradoxical pulse. The patient should not be asked to breathe deeply during this procedure. Contrary to statements in several textbooks, the pulse is NOT "paradoxical" but an exaggeration of the normal respiratory variation in pulse volume.

LABORATORY FINDINGS

Although the diagnosis can be made with certainty with bacteriological and pathological studies of tissues, the other laboratory findings in tuberculous pericarditis are often not diagnostic but sometimes are of great help in the differential diagnosis. A nonprotein nitrogen will rule out the presence of uremia. The complete blood count frequently reveals anemia. The leukocyte count is usually normal as opposed to benign pericarditis, which frequently shows a modest to moderate leukocytosis. A marked leukocytosis is usually seen in acute infectious pericarditis caused by pneumococci and streptococci. The erythrocyte sedimentation rate is elevated in virtually all types of pericarditis and is of value only from the standpoint of "activity." A negative old tuberculin or purified protein derivative skin test is more helpful than a positive one as it serves to exclude the diagnosis except in old or debilitated patients. The antistreptolysin-O titer and throat cultures for streptococci are of value in young patients where rheumatic pancarditis is a consideration. Tuberculous pericarditis is often associated with extrapericardial tuberculosis, and the patient should be examined carefully to exclude involvement of other organs. The chest x-ray is a great aid in detecting enlargement of the pericardial silhouette, the presence of pulmonary tuberculosis, and the confirmation of a pleural effusion. Chest films made in erect and prone positions may show an increased width of upper portion of cardiac shadow in pericardial effusion. Cardiac fluoroscopy

and kymography will sometimes reveal dampened pulsations when pericardial involvement is present. Angiocardiography is useful in differentiating pericardial effusion from congestive heart failure. Cardiac catheterization will show a characteristic early diastolic dip in the right ventricular pressure curve and a general elevation of the baseline pressure. Air injected into the pericardial space following a pericardiocentesis will show characteristic thickening of the pericardium seen in tuberculous pericarditis and may be helpful in determining if the pericardium is adherent to the epicardium. (See

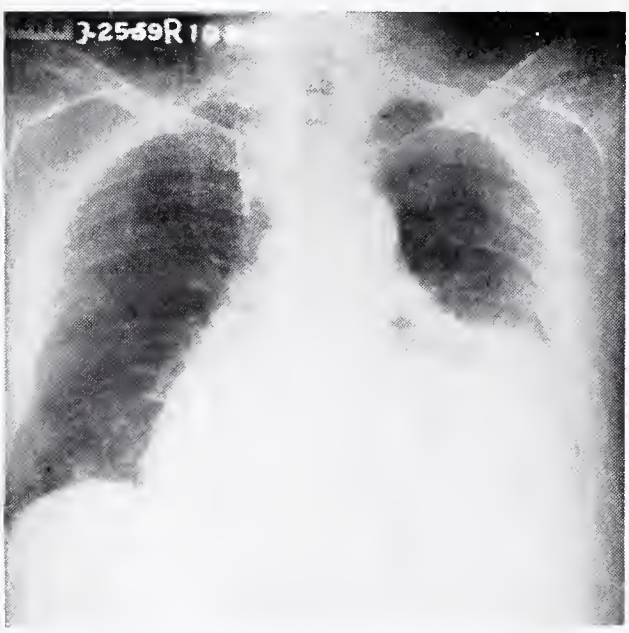


Figure 1. Post-pericardiocentesis PA chest film with injection of air into pericardial space. Note thickening of pericardium. Rotational views at this time will frequently reveal areas where the pericardium is adherent.

Figure 1.) The electrocardiogram is abnormal in almost 100% of patients with pericarditis. The findings are tachycardia, low voltage, ST-T wave changes, and arrhythmia. The ECG is also valuable in exclusion of a myocardial infarction. The patient should have sputum or gastric examinations for tubercle bacilli. Pericardial tap should be attempted if necessary for diagnosis as tubercle bacilli are grown from the pericardial fluid in 44 to 71% of the cases.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of pericarditis is difficult, and one cannot always be sure of the diagnosis until after an appropriate period of observation. Pericarditis caused by myocardial infarction or uremia offers no serious difficulty. A young person with a recent history of an upper respiratory infection, pericardial friction rub, leukocytosis, and normal venous pressure suggests benign pericarditis. A negative tuberculin skin test in these patients is of great benefit. A patient who is observed to have an illness of one or two weeks duration or who has a previous history of pericarditis is likely to have benign pericarditis. The presence of neoplasia, usually in the lung or possibly elsewhere, always suggests the possibility of metastasis to the pericardium. In a young person who also has the findings of arthritis, the presence of rheumatic carditis should be considered, and a throat culture and ASO titer should be of assistance in these patients. Multiple system involvement should, in addition to miliary tuberculosis, suggest the possibility of collagen vascular disease.

TREATMENT

It is in the treatment of tuberculous pericarditis that the more recent advances have been made. A pericardiocentesis in the acute effusive phase, with removal of as little as 75 cc of pericardial fluid, may be lifesaving. This fluid is also valuable for culture, and nitrous oxide or air may be injected at the time of aspiration to help in the radiographic diagnosis. Digitalis may be needed to control cardiac arrhythmias and, perhaps, to treat congestive failure in patients who are seen late in their disease and have myocardial damage. Digitalis is of no benefit in patients with cardiac tamponade; however, diuretics and low sodium diets are helpful in secondarily restoring some degree of compensation. The clinical findings determine when to start antimicrobial therapy. The largest single factor in the prognosis of these patients is the delay from onset of symptoms until treatment is started. Accordingly, antimicrobial therapy should not be withheld pending outcome of cultures if clinical suspicion is strong. Isoniazid and para-aminosalicylic acid are probably the most commonly used drugs today. Streptomycin may also be used early and continued for a significant time if deemed necessary. (See Table 1.) Therapy should

TABLE I Antituberculous Drugs*

DRUG	USUAL DOSAGE	DURATION	TOXICITY
1. Para-Aminosalicylic Acid	1. 12 grams daily of the acid in three divided doses. (5.5 grams of the sodium salt equal 4 grams of the acid.)	1. 18 to 24 months duration generally recommended in the average case. For the more severe cases the duration is prolonged.	1. Gastrointestinal upset. (Nausea, vomiting, diarrhea, abdominal pain.) 2. Hypersensitivity reactions. (Malaise, fever, lymphadenopathy, skin rash, elevated alkaline phosphatase. Leukemoid reaction. Hepatosplenomegaly or atypical lymphocytosis, leukopenia.)
1. Isoniazid	1. 300 mgm. daily in 3 divided doses. (Range 3 mgm. to 32 mgm/Kg. body weight. Should always be accompanied by pyridoxine, 50 mgm. to 200 mgm. daily, to prevent peripheral neuritis.)	1. 18-24 months (as above).	1. Peripheral neuritis. 2. Autonomic nervous system irritability. (Vertigo, constipation, muscle twitching, drousiness, restlessness, headaches, exaggerated reflexes, dry mouth and delayed micturition.) 3. Convulsive seizures (may be produced by large doses of I.N.H., contraindicated in epileptic patients.) 4. Hypersensitivity reactions. (Least common cause of the three usual drugs.)
1 Streptomycin	1. 1 gram twice weekly usual dose. More toxic cases, 1 gram daily for first 3 months. (In patients without impaired renal function.)	1. As above.	1. Damage to the 8th cranial nerve. (More frequent dizziness, vestibular effect.) 2. Aggravation of prior renal impairment. 3. Circumoral paresthesia common but unimportant side effect.
1 Dihydrostreptomycin	1. Same as for Streptomycin.	1. Same as for streptomycin.	1. Damage to the 8th cranial nerve. (More frequent deafness. Auditory effect.) 2. Aggravation of prior renal impairment.

*Courtesy Dr. Erner Jones

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be continued at least 18-24 months or six months after all signs of activity have disappeared. The criteria for inactivity are:

1) Normal temperature.
2) Normal erythrocyte sedimentation rate.
3) No evidence for pulmonary congestion.
4) Heart normal size with normal pulsation.
5) Stable electrocardiogram.

A difficult question which is not yet resolved is when one should recommend a pericardiectomy for those patients whose response is not prompt on chemotherapy. The incidence of constriction is not well known, although it is reported to be 20 to 25% in most case studies. Constriction is appreciably higher in those patients in whom chemotherapy is delayed for as much as 6 to 8 weeks after onset of symptoms. The general trend in recent times is to recommend an early pericardiectomy where congestive failure does not improve after a reasonably short time of chemotherapy. As with pulmonary tuberculosis, chemotherapy is recommended prior to surgery in these patients. Evaluation of the results of therapy is difficult because of the complexity of this disease, and a controlled study is needed to resolve some of these difficult questions. Some of the factors which affect the prognosis of patients treated for tuberculous pericarditis are:

1) Age—younger patients do best and older patients do less well, as might be expected.
2) Race—Caucasians enjoy a more favorable prognosis.
3) A sudden onset is attended by a more favorable prognosis, whereas a gradual onset carries a poor prognosis.
4) Congestive heart failure or cardiac arrhythmia naturally carry a serious prognosis.
5) Overt extrapericardial tuberculosis is naturally unfavorable, and one is likewise hesitant to do "elective" pericardiectomy in such patients.
6) A bacteriologically proven diagnosis in the literature has resulted in a poor prognosis as opposed to those which were "clinically" diagnosed.

As indicated above, the common denominator of these factors is probably a delay from the onset of symptoms until the time when treatment is started.

Cardiac arrhythmia is the most frequent complication during surgery and, for this reason, cyclopropane anesthesia probably should be avoided. Pronestyl and an electrical defibrillator should be available. Occasionally, the infectious process is so extensive that complete pericardiectomy is impossible for technical reasons or the occurrence of severe cardiac arrhythmia. A partial pericardiectomy is then recommended, with as much of the pericardium over the left ventricle removed as is feasible. Cardiac catheterization data have indicated that constriction of the ventricles, and not vena caval obstruction, is the principle cause for the diminished cardiac output.

As the pericardium is removed, the cardiac output increases markedly and, if the patient was edematous prior to surgery, this results in a profuse diuresis of fluid. Consequently, these patients should be observed for hyponatremia as a complication in the early postoperative period. The patient may, for the same reason, also exhibit hypokalemia, and this should be avoided as it may predispose the patient to serious arrhythmia.

The management of postoperative problems is largely a specialized surgical one and is beyond the scope of this communication.

CASE REPORT

The following case is presented to illustrate some of the cardinal features of constrictive pericarditis and demonstrate how the natural course of the disease may be altered by surgery and chemotherapy.

History

J.B.C., a single, 54-year-old, white male veteran was admitted to the Little Rock Division, Consolidated VA Hospital, on 5/30/55 with a history of onset of marked fatigue, chest pain, and dyspnea two weeks before admission. One week before admission he experienced an episode of palpitation with rapid irregular heart rate. He described numbness of the left side of the body, transitory in

nature. Some edema of the ankles was also noted prior to admission. He had been employed as a manual laborer for the State Highway Department for several years. Past history was not significant. There was no family or contact history of tuberculosis. He had an upper respiratory infection about 4-6 weeks prior to onset of the present illness; recovery was apparently uneventful.

Physical Examination

The patient was a well developed, fairly well nourished, white male who did not appear acutely ill. Blood pressure 142/98, pulse 130, respirations 35, temperature 98.4° F. The heart was enlarged 1-2 cm. to the left of the midclavicular line. Auricular fibrillation was present. No rub was heard at the time of admission. Fine moist rales were present in the left lung base. The liver was not palpable, but tenderness was present in the right upper quadrant.

Laboratory Studies

Electrocardiograms: (See Figure 2.). Representative tracings selected show preoperative trace on 7/19/55, showing tachycardia, low voltage and ST-T changes of digitalis and/or ischemia effect and a post operative trace performed on 9/24/58, showing reversion to completely normal electrocardiogram.

X-Rays: (See Figure 3.) 5/31/55—Marked enlargement of cardio-pericardial silhouette. Small amount of pleural fluid. Pulmonary congestion present.

6/6/55—Prone and erect films show widening in the "waist" of the heart, sug-

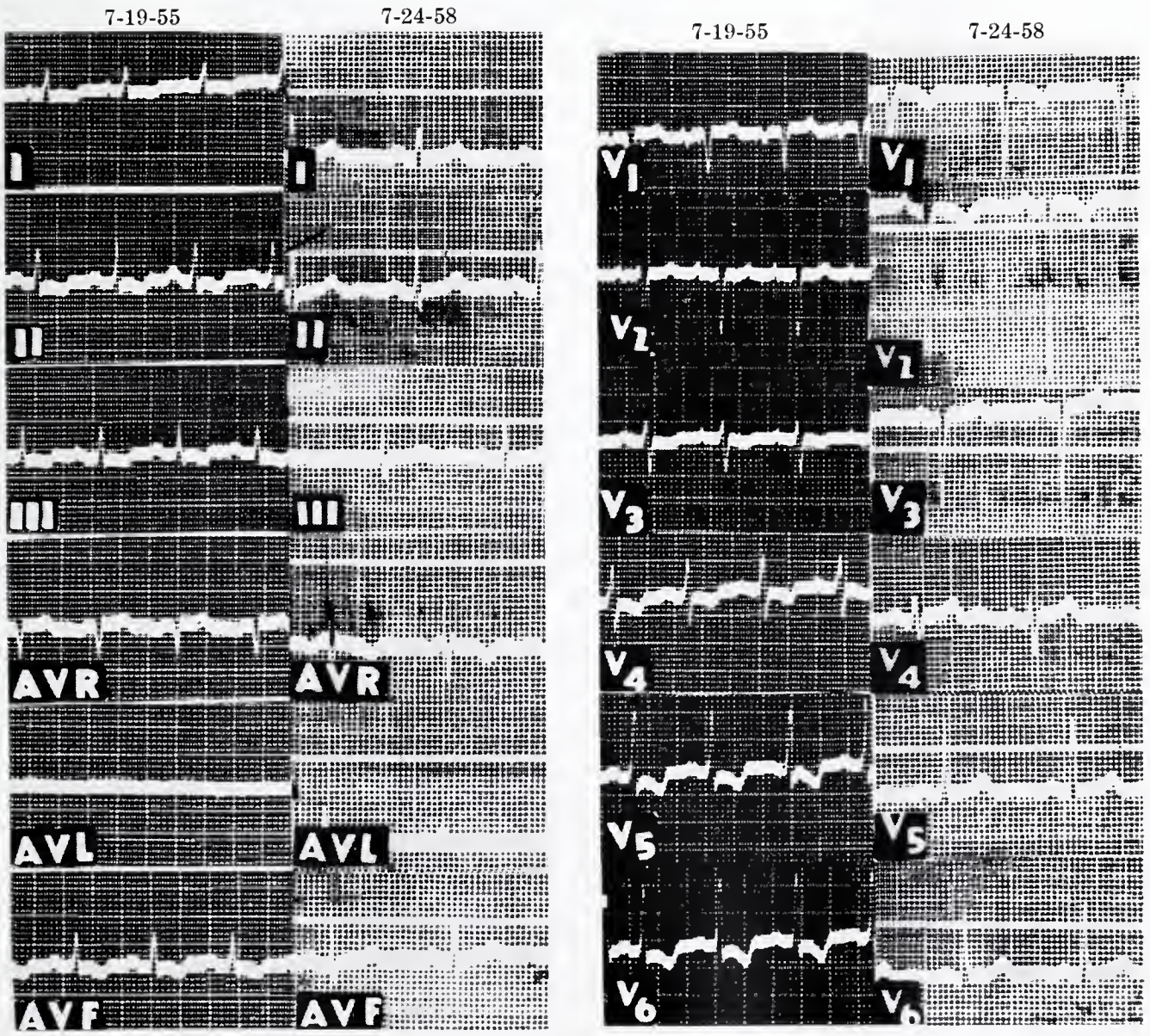


Figure 2. J.B.C. Note return of ECG to normal over a three-year period. The ECG is frequently the last laboratory aid to revert to normal.

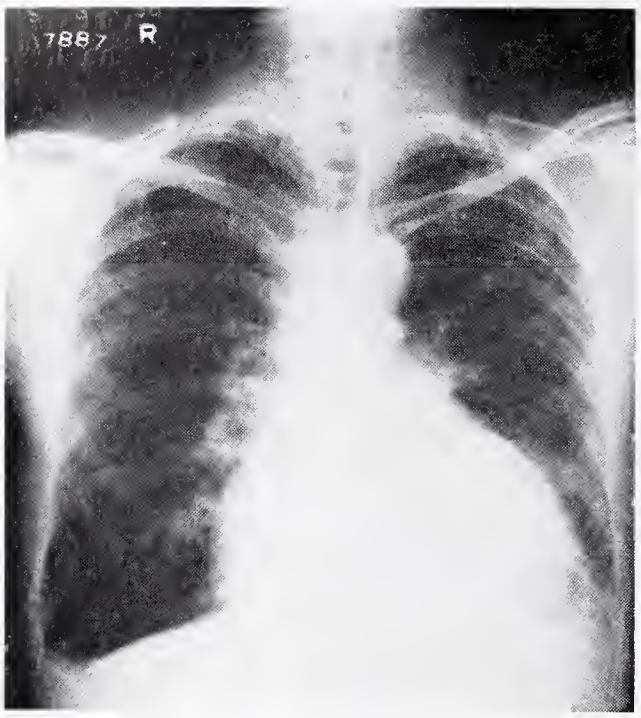


Figure 3. J.B.C. Initial chest film, May 1955. Note globular shape of the cardio-pericardial silhouette. Pulmonary congestion is not demonstrated well in the photograph.

gesting pericardial effusion. Pleural effusion still present.

6/21/55—Heart size considerably smaller.

7/11/55—Transverse diameter of the heart 130 mm. as opposed to 195 mm. on admission.

10/18/55—Fluoroscopy reveals "small quiet heart," suggesting constrictive pericarditis. Diaphragmatic adhesions noted at site of earlier pleural effusion. Transverse diameter 125 mm.

Subsequent x-rays show results of surgery (pericardiectomy) and return of heart to normal dimensions. (See Figure 4.)

Pyelograms, GI Series, Barium Enema, Gallbladder Series were all normal.

Hemogram: 5/31/55 — Hemoglobin 15.1 grams, hematocrit 50, sedimentation rate 24 mm/hour, WBC 8,000 with 63 neutrophils, 20 lymphocytes, and 17 bands. Additional studies revealed no striking changes.

Urine: Repeated urinalyses, including cultures, were never remarkable except for a trace of protein on several occasions.

NPN: 58 mg.% at time of admission, subsequent fall to 35 mg.%.

Repeated "L.E." preparations: Negative

ASO titer: 50 units

Liver function studies were normal after congestive heart failure was controlled. Cultures of sputum were negative for pathogens, fungi, and acid-fast bacilli. Stools were negative for ova and parasites. Skin tests were initially negative for PPD; later became positive. Skin tests for histoplasmosis and coccidioidomycosis were negative.

Course in Hospital

The patient was digitalized with digoxin, placed on a low sodium diet, and given mercurial diuretics. A pericardial friction rub was heard repeatedly during the first six weeks of hospitalization. He had moderate fever for the first two weeks of hospitalization, but thereafter the temperature was normal. He seemed to improve during the first few months; then, in spite of small heart size on x-ray, symptoms became more severe. A low pulse pressure, tachycardia, and paradoxical pulse were noted in October 1955. Venous pressure increased to 230 mm. of saline.

Pericardiectomy was done 11/14/55, and recovery was uneventful. Pathological examination of tissue revealed giant cells and fibrocaseous changes consistent with tuberculosis. Following surgery, the

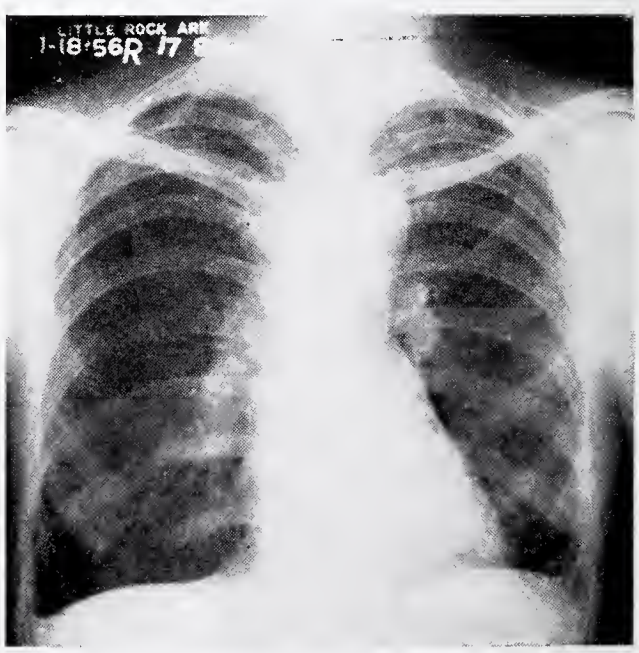


Figure 4. J.B.C. Repeat chest film two months post-pericardiectomy. Note that the heart is now normal in size.

patient received streptomycin, isoniazid, and para-aminosalicylic acid therapy. Streptomycin was discontinued after one year, INH and PAS after 22 months. Digoxin was continued for one year postoperatively, then discontinued without recurrence of symptoms. At present, the patient is free of symptoms of heart disease. The chest x-ray and electrocardiogram are normal.

COMMENT

The diagnosis of exact etiology of the pericarditis in this patient was not certain after several months of observation. The decision to withhold antimicrobial therapy was made in order that cultures of tissue and pathological examination could be accomplished. We do not feel that this altered his course in any way; it does serve to demonstrate the difficulty of determining exact etiology in some cases of pericarditis.

CONCLUSION

Tuberculosis is an important cause of pericarditis. Recognition is more important today as the disease responds to medical and surgical management. Skillful use of clinical history, physical findings, and laboratory aids should enable the physician to arrive at an accurate diagnosis so that appropriate therapy may be initiated.

SUMMARY

History, physical findings, laboratory data, and treatment in tuberculous pericarditis have been discussed briefly. A case report of a patient demonstrating progressive changes and constrictive pericarditis with satisfactory surgical and medical cure has been presented.

Early recognition and suspicion of this disease are important factors if desirable results are to be obtained with therapy.

Acknowledgment: The authors wish to express appreciation to Dr. Erner Jones, Little Rock Division, Consolidated VA Hospital, for assistance in the preparation of Table 1, and Dr. Robert S. Abernathy of the Department of Medicine for constructive criticism of the manuscript.

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What Is Your Diagnosis?



FOR ANSWER SEE PAGE 217

Arkansas Public Health at a Glance

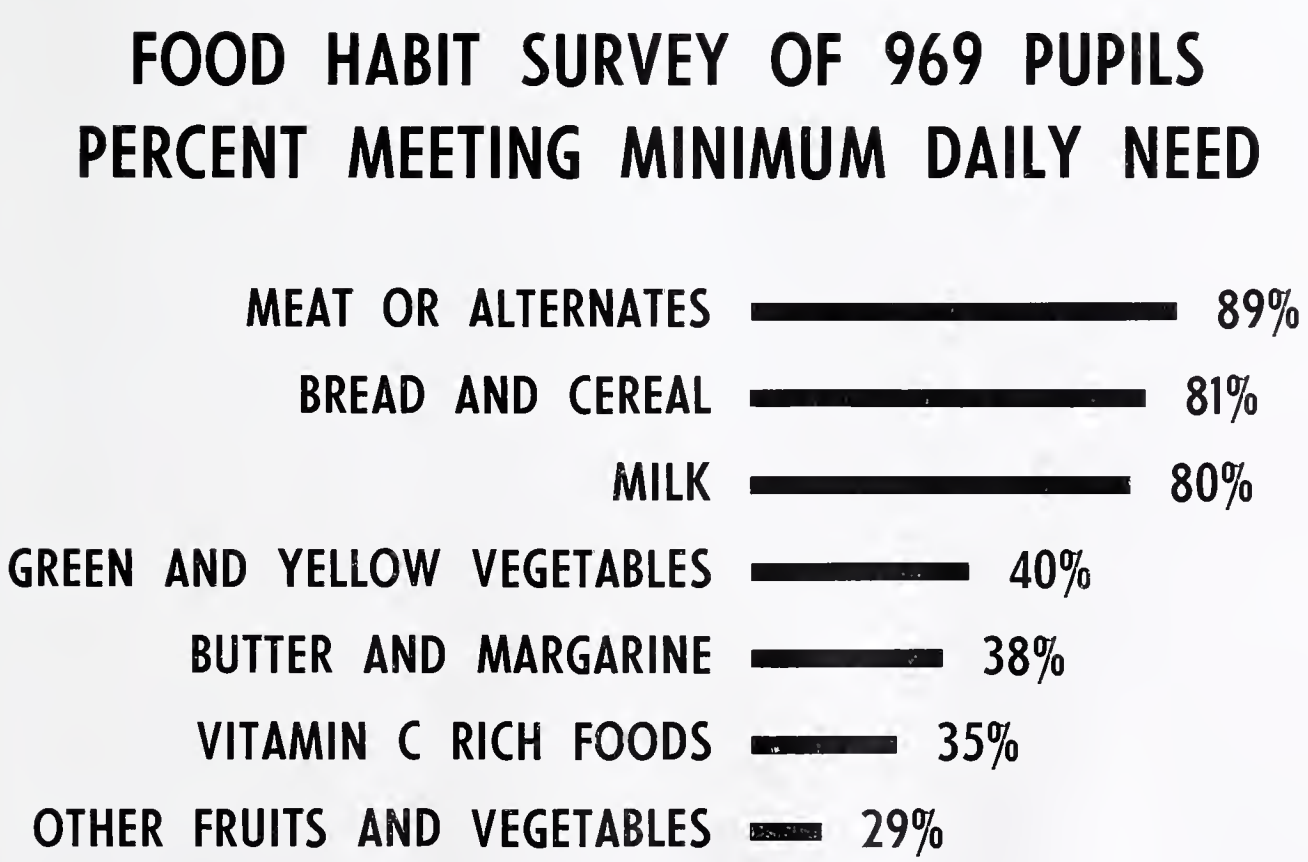
Food Habits of Arkansas School Children

The nutrition service of the Arkansas State Board of Health sponsored a series of food habit surveys among school children last spring. These surveys consisted of three day studies of the eating habits of the children and were jointly supervised by the home economics departments in the local schools and nutrition personnel from the State Health Department. Six school districts representing six different counties and over 1,000 children were involved.

Many of the results of these studies were easily predictable. However, there were some rather revealing findings. One point of interest was that in these six schools there was not the widespread practice of skipping breakfast that had been expected. Apparently the emphasis on this area of nutrition education has been producing results, since a majority of the children had an acceptable breakfast. The surprise was in the number of children who either had no supper or only a very poor one. This was the meal often missed in those families that followed a two-meal-a-day eating pattern.

An encouraging result of the survey was in the fact that most of the children received an adequate amount of milk in their daily pattern. Some of this can be attributed to the milk break now practiced in most schools. It should also be mentioned that in a great many cases the school lunch was the best meal that the child had during the day.

Two important nutrition problems were pointed out in a summary of the survey findings. The consumption of green and yellow vegetables and vitamin C rich foods were grossly inadequate. The second problem is a familiar one. In nearly



every case there was considerably too many concentrated sweets in the child's diet. It was not unusual to find a child who had no regular meals at all during the day. They simply snacked on sweets and cold drinks. These cases were more frequent in those families in which both parents worked. It was apparent in many of these families that no provision at all had been made by the adults for the meals of the children. Much attention needs to be given to nutrition planning in the family in which both parents are employed.

The accompanying chart gives an indication of the food patterns of the children in one school. This chart indicates the percentage of the children who met the minimum daily requirements in each of the categories listed.

Editorial

Is Socialism Demoralizing?

R. B. Robins, M.D.*

During my recent testimony before the Ways and Means Committee on the Forand Bill, I was relating some of my observations on the National Health Service in Great Britain while on my recent trip to England.

Congressman Bruce Alger of Texas noted that I stated in my testimony that the system of Socialized Medicine over there, in my opinion, was demoralizing. He asked me what I meant by demoralizing?

Well, I could have made him a long speech on this subject. I told the Committee that on Sunday, before I left Camden, Arkansas, to go to London on Monday, I had a call about dinner time, by a mother, to come to her home immediately to see a young daughter who had come home intoxicated, and who was creating a considerable amount of disturbance in their home. I went to the home and gave the wayward young daughter a sedative, and she was soon in bed asleep. The distressed mother and father asked me to linger for a while in their living room to discuss with them their problem, like a family doctor should do. I spent almost two hours with this father and mother. They brought up the subject of advice from a psychiatrist, because, I discovered, upon getting the full history, that this young daughter had a history of considerable unsocial conduct. As I weighed their problem, I suggested that they take their problem to the minister of their church first, because it is my belief that the psychiatrist's couch cannot take the place of the church in solving the problems of a frustrated society.

When I related this story to some of my British colleagues, I received smiles and comments like this: "Mercy, Doctor, under our system of state medicine with long queues of people, we wouldn't have the time available to do this type of thing. We can only spend from one to five minutes with each patient." I was also told that 90% of the British people were now very apathetic toward religion.

In one town that I visited, I found that a number of years ago the people of the community had raised money by voluntary subscription to build a nice chapel in their hospital. The chapel was built. The government took over the hospitals in 1948, and now in this town the government is tearing down this chapel to do some remodeling of the hospital. They are making no provision to replace the chapel, and I found some citizens very much upset and concerned about the matter.

It was natural for the thought to run through my mind: "Can it be that when Socialism moves in, the church moves out?" I think this is a question for all of us doctors and our fellow citizens to ponder, because, in my opinion, Socialism is just one road in the direction toward Communism.

*Camden, Arkansas

Medicine in the News

The Month in Washington

Washington, D. C. — The House Ways and Means Committee has put aside until next year the so-called Forand bill which is opposed vigorously by the medical profession.

But supporters of the legislation have made clear that they will press for action by Congress next year when politics will be paramount because of the presidential and Congressional elections in November.

The Ways and Means Committee took no action on the legislation after five days of hearings highlighted by the Eisenhower Administration lining up with the medical profession in opposition to it.

Arthur S. Flemming, Secretary of Health, Education and Welfare, told the committee that "it would be very unwise" to enact such a bill. He warned of "far-reaching and irrevocable consequences." It would freeze health coverage of the aged "in a vast and uniform government system" and would mark the beginning of the end of voluntary health insurance for old persons, he said.

Secretary Flemming later promised to report to Congress early next year on possible alternatives, including Federal subsidies to private carriers of health insurance for the aged. But he took no position on any of the alternatives for the time being.

Summing up the hearings, Dr. F. J. L. Blasingame, Executive Vice President of the AMA, said:

"It was shown that it would be most unfortunate for the federal government to move in for political reasons and attempt in a compulsory fashion to solve by legislation problems which are being thoughtfully considered at the state and local level by the medical profession and other dedicated members of the health team."

Main support for the bill, which was sponsored by Rep. Aime J. Forand (D., R. I.), comes from organized labor. The legislation would increase federal Social Security taxes to finance hospital, surgical and nursing home care for Social Security beneficiaries.

Although this bill has been shelved for the time being by the House Committee, the problems of the aged are being studied by a Senate Subcommittee headed by Sen. Pat McNamara (D., Mich.). The Subcommittee on Problems of the Aged and Aging of the Senate Committee on Labor and Public Welfare has held public hearings intermittently in Washington. It also planned to hold hearings in various other cities.

In his second appearance before the Senate Subcommittee, Dr. Frederick C. Swartz, Chairman of the AMA's Committee on Aging, reported that state and local medical associations "have moved promptly" to make the AMA's six-point "positive health program" for the aged "an effective and workable instrument."

Dr. Swartz said that the problem of financing health services for the aged is "a temporary, not a permanent one" because "each year, more and more of the Americans who are reaching 65 are covered" by voluntary insurance.

* * *

Democrats in Congress cut back their housing program further after President Eisenhower vetoed a $1.4 billion bill. Starting with a $2.1 billion program, Democrats came down to the $1.4 billion figure in an effort to avoid a veto although it was a more expensive program than Mr. Eisenhower wanted.

After the President vetoed this bill anyway, Democrats came up with a $1 billion bill which retained three provisions of interest to the medical profession.

They would:

1) provide construction loan guarantees by the Federal Housing Administration of up to 75 per cent of the cost of proprietary nursing homes; 2) authorize $25 million in direct loans for construction of housing for interns and nurses, and 3) authorize a $50 million revolving fund for direct loans to help private nonprofit corporations build rental housing for the elderly.

* * *

Congress voted a compromise $400 million appropriation for medical research. The amount was about $80 million less than approved by the Senate, but was

more than $100 million above the Eisenhower Administration's request for the National Institutes of Health.

The allotments for research in specific fields included: cancer, $91 million; mental health, $68 million; heart, $62 million; arthritis, $47 million; neurology, $41 million; allergy, $34 million.

ANNOUNCEMENTS

Announcement of Regular Corps Examination for Medical Officers United States Public Health Service Commissioned Corps

A competitive examination for appointment of physicians as Medical Officers in the Regular Corps of the United States Public Health Service Commissioned Corps will be held throughout the United States on November 17, 18, 19, and 20, 1959. Application forms may be obtained by writing to the Surgeon General, United States Public Health Service (P), Washington 25, D. C.

Texas Medical Association 5th Annual Public Relations Conference

The Fifth Annual Public Relations Conference of the Texas Medical Association was held Saturday, September 26, at the Headquarters Building in Austin.

Fourth National Cancer Conference

The Fourth National Cancer Conference, sponsored by the American Cancer Society, Incorporated, and the National Cancer Institute, will be held September 13 to 15, 1960, in Minneapolis, Minnesota.

Sixth Annual Southeast Missouri Cancer Conference

The sixth annual Southeast Missouri Cancer Conference is scheduled for Cape Girardeau on Sunday, October 4; it is designed for physicians from Southern Illinois, Western Kentucky, Northern Arkansas, Northwestern Tennessee and Southeastern Missouri.

Dow Corning Establishes Center To Help Medical Research

The Dow Corning Corporation announced the founding of the Dow Corning Center for Aid to Medical Research, at Midland, Michigan, August 14.

Omaha Mid-West Clinical Society 27th Annual Assembly

The 27th annual assembly of the Omaha Mid-West Clinical Society is to be held November 2, 3, 4 and 5, 1959, at Civic Auditorium, Omaha, Nebraska.

Chicago 10th Annual Civil Defense Conference

The 10th annual County Medical Societies Civil Defense Conference will be held in Chicago, November 7 and 8 at the Morrison Hotel.

District Meeting of American College Of Obstetricians and Gynecologists

District VII of the American College of Obstetricians and Gynecologists held its 7th annual meeting in the Chase-Park Plaza Hotels, St. Louis, September 17-19.

Deborah Hospital 2nd International Symposium on Changing Concepts In Medicine

The Deborah Hospital has announced the 2nd International Symposium on Changing Concepts in Medicine (Congenital Heart Disease) will be held at the Bellevue-Stratford Hotel in Philadelphia, Pennsylvania, on April 28, 29, 30, 1960.

American College of Allergists Graduate Instructional Course And Annual Congress

The American College of Allergists Graduate Instructional Course and Annual Congress, February 28 to March 4, 1960, The Americana Hotel, Bal Harbour, Miami Beach, Florida. For information contact, John D. Gillaspie, M. D., Treasurer, 2049 Broadway, Boulder, Colorado.

Tennessee Valley Medical Assembly

The Tennessee Valley Medical Assembly, sponsored by the Chattanooga and Hamilton County Medical Society, was held at the Read House, Chattanooga, Tennessee, Monday, September 28, and Tuesday, September 29, 1959.

AMA 13th Clinical Meeting

The American Medical Association's 13th clinical meeting will be held in Dallas, Texas, December 1-4.

1st National Conference on Medical Aspects of Sports Injuries

The first national Conference on the Medical Aspects of Sports, sponsored by the American Medical Association, will be held November 30, in Dallas, Texas.

Letter to the Editor

Dear Dr. Kahn:

The Medical and Chirurgical Faculty of the State of Maryland (Maryland State Medical Association) has, for many years, expressed concern over the inroads the Veterans Administration Hospitals are making into the realm of the private practice of medicine. In order to combat the fantastic growth of treatment of non-service connected ailments of veterans, the Faculty has passed many resolutions condemning this practice and urging that something concrete be done to curtail or stop this insidious growth.

The Faculty's House of Delegates at its 1959 Annual Meeting passed a resolution that all component medical societies of the American Medical Association be contacted and urged to support the Faculty's stand in this respect.

As a result of a letter sent to every A.M.A. component medical society, eleven answers have been received all in the affirmative.

It is anticipated that other societies will also reply in the affirmative and that full support to this projected concerted action will be forthcoming from them as well.

I sincerely hope that you will see fit to publish this letter and alert your readers to the steps that are being contemplated along these lines, not the least of which is the hope that an appropriate resolution will be introduced in the A.M.A.'s House of Delegates at its clinical session in Dallas in December.

Sincerely,

Amos R. Koontz, M.D., Chairman
Committee on Veterans' Medical Care
Baltimore, Maryland.

Obituary

Dr. Robert L. Saxon, 85, of Little Rock, physician and surgeon, died at a Houston, Texas, hospital, Sunday, August 9. Dr. Saxon was a native of Union County, and was a former president of the Pulaski County Medical Society. He is survived by his wife, a son, three daughters, and seven grandchildren.

Services were held Friday, July 31, for Dr. Herbert Shirley Watson, who died Wednesday, July 29, at Kennedy Hospital in Memphis. Dr. Watson was born in Choctaw County, Mississippi, where he spent his early childhood. He graduated from the University of Tennessee School of Medicine and did his intern work at the Baptist Hospital in Memphis. In 1916 he opened his office in Earle, Arkansas, where he practiced medicine for 30 years before retiring to farming and cotton gin interests. During his professional career, he became associated with the late Dr. W. P. Hicks of Earle and they opened a clinic and hospital, in Earle. Dr. Watson was a member of the Arkansas Medical Society, the Crittenden County Medical Society and of the Association of American Railway Surgeons. He leaves his wife, two sons, his mother, two brothers and a sister.

Dr. Rolland Fulton Darnall, aged 88, of Little Rock, died Monday, July 20, at a Little Rock hospital. Dr. Darnall, a former State Hospital official, was a native of Bainbridge, Indiana, and a graduate of DePauw University at Greencastle, Indiana. He served his internship at Indianapolis. Dr. Darnall has had a private practice at Little Rock since 1919. He was the first life member of the Arkansas State Medical Society and the Pulaski County Medical Society. He was president of the County Society at one time. He is survived by his wife.

Dr. Charles E. Benefield, with fifty-five years of service in medicine, died August 6, 1959, at home, 712 North 12th Street, Fort Smith, after a long illness. Graduate of the old Buckner College,

Witcherville, Arkansas and Memphis Hospital Medical College, Memphis, Tennessee, which is now the University of Tennessee School of Medicine. Received his M. D. in 1902 and in 1952 was presented the "Golden T" from the University of Tennessee School of Medicine for fifty years of medical practice.

Practiced medicine in Conway, Arkansas, in partnership with the late Dr. G. D. Huddleston until 1927 after which he practiced medicine and surgery in Fort Smith, Arkansas, until his retirement in 1950.

Post-graduate work was done in practically all Post-Graduate Schools of Medicine, including: Tulane Polyclinic, New Orleans, Louisiana — 4 years; Dallas, Texas, Medical Conference — 4 years; spent one winter observing clinical work in the Mayo Clinic, Rochester, Minnesota, during the lifetime of Drs. William and Charley Mayo; New York Medical Center—one summer.

Early history of medical career antidated all scientific medicine, during which days there was no prophylactic medicine in general practice, save that of small pox vaccine which was in a very crude form.

Two uncles, the late Dr. Will Pitman of Greenwood and Fort Smith and Dr. E. L. Hesterly of Greenwood had a great deal of influence toward decision to enter field of medicine.

A member of the American Medical Association since graduation and of the state and county societies.

In 1896 appeared before the Choctaw Nation's District Medical Examiners and secured license to practice medicine in the Choctaw Nation. During this practice in the Choctaw Nation, one of his memorable Choctaw patients was a Methodist minister named Fulsom who was the 106 year old father-in-law of the then Indian Chief of the Choctaw Nation. This Indian Chief was Green McCurtain.

Born in Chapel Hill, Georgia, November 25, 1870. A 32nd degree Mason—presented 50-year Masonic button in 1952 — member of the Knights of Pythias, First Methodist Church and the Rogers Bible Class.

Survived by wife, Nora; one son, Ralph of San Antonio, Texas; one daughter, Mrs. Exene Brann of Fort Smith, Arkansas; one granddaughter, Mrs. Wayne Winkler of Nashville, Tennessee; two great-grandchildren, and two sisters, Mrs. T. B. Kaylor of Fort Smith and Mrs. Ben Wolverton of Port Arthur, Texas.

Services at the Roebuck Chapel, First Methodist Church of Fort Smith, Arkansas, on August 8, 1959, with the Rogers Bible Class officiating. Interment in Forest Park Cemetery, Fort Smith, Arkansas.

New Members . . .

Dr. James M. Kolb, Jr., an intern at the Hillcrest Medical Center in Tulsa, has been accepted for membership in the Johnson County Medical Society. Dr. Kolb attended high school in Clarksville, received a B.S. degree from the University of Arkansas at Fayetteville in 1956 and was graduated from the University of Arkansas Medical School in Little Rock in 1959.

Dr. Gene D. Moore of Huttig has been accepted for membership in the Union County Medical Society. Dr. Moore is a native of Louisiana and received his education in that State; he was graduated from the Louisiana State University School of Medicine in 1956. He practiced in Louisiana prior to moving to Huttig about a year ago. Dr. Moore is a general practitioner and does some work in industrial medicine.

A new member of the Independence County Medical Society is **Dr. G. C. Evans.** He is a native of North Little Rock, and received his preliminary education at Subiaco Academy and Hendrix College. His M.D. degree was obtained at the University of Arkansas School of Medicine, July 15, 1957. Dr. Evans is a general practitioner with his office at 477 E. Main, Batesville, Arkansas.

Personals and News Items

Dr. J. Harry Hayes, Jr., of Little Rock, finished his tour of Army service in June and is now located at the New York Hospital (Cornell Medical Center) taking a Plastic Surgery Residency.

Dr. Ralph Downs has moved his office to 321 North 13th Street, Fort Smith, Arkansas.

Dr. J. P. Shermer has moved into his new office building at 623 South 21st Street, Fort Smith. **Dr. L. A. Whittaker, Jr.,** will occupy offices in the same new building.

The Chairman of the Greene County Medical Society, **Dr. A. E. Andrews,** spoke to the members of the Kiwanis Club at a luncheon meeting at the Hotel Vandervoort, Paragould, Arkansas, on Tuesday, August 4. His subject was polio and the Salk vaccine shots.

Dr. Jean C. Gladden, of Harrison, Arkansas, has announced the association in his surgical practice of **Dr. Rhys Williams,** formerly of St. Louis, Missouri.

The guest speaker at the August 4 meeting of the Tuckerman Lions Club, was **Dr. J. D. Ashley,** physician and surgeon, of Newport. He gave a very interesting and educational talk and showed slides of Mexico.

Physicians assigned to establish chest clinics where needed throughout the state were visitors to the Crittenden County Health Department, Tuesday, July 21, studying the clinic now in operation at Marion. The clinics will supplement the annual chest x-ray clinics now being provided, making it possible for persons to have examinations at specified times throughout the year.

The opening of an office by **Dr. Gilbert Evans,** who is associated with Dr. Gray's Hospital, in Batesville, has been announced. The office is in Newark and was opened in July. Dr. Evans plans to be in his office each Wednesday afternoon.

The Lawrence Memorial Hospital, Walnut Ridge, Arkansas, is approximately 60% complete. The proposed opening date now is about Christmas.

The Optimist Club, Hot Springs, Arkansas, was addressed by **Dr. Theodore Swinyar** of Benton. His subject was lung cancer. He also showed a film entitled "One in 20 Thousand."

Atkins, Arkansas, is going to get a new clinic. A Russellville firm was the lowest bidder on construction and has stated that construction will begin immediately. No definite date has been set for completion of the building but it is to be ready in time for **Dr. Tom Robinson,** now of North Little Rock, who has agreed to take charge of the clinic at the first of the year.

Dr. James E. Doherty, a consultant at the University Medical Center, discussed open heart surgery at a meeting of the Little Rock Civitan Club at the Hotel Lafayette, July 23, 1959.

Proceedings of Societies

The Union County Medical Society gave its annual Seminar on Trauma in El Dorado, Arkansas, July 26, from 9 a.m. to 4 p.m. The guest speakers were members of the staff of the Department of Surgery, Washington University School of Medicine, St. Louis, Missouri. Owen Payne, State Civil Defense Chairman, also addressed the group.

The Lawrence County Medical Society conducted a "Countywide" Polio Immunization Clinic, Monday, August 17th, at the Courthouse in Walnut Ridge, Arkansas.

Contributors to the American Medical Education Foundation from the State of Arkansas, July 1959:

Dr. Carl Wilson, Fort Smith	$50.00
	$50.00

Book Reviews

NELSON'S TEXTBOOK OF PEDIATRICS. Edited by Waldo E. Nelson, M.D., D. Sc. Professor of Pediatrics, Temple University School of Medicine; Medical Director of Saint Christopher's Hospital For Children. Seventh Edition. Illustrated, PP 1462, 1959, W. B. Saunders Company, Philadelphia and London.

This book is a symposium by many authorities in the field of pediatrics. The book is well organized along conventional lines with the introductory portion being devoted to physical growth and development. This includes some discussion of psychologic disorders. There is a section on adolescence; the reviewer feels that more space could have been devoted to this particular field. Some of the big problems in current medicine concern adolescence. The section on infectious diseases is particularly good. The section on poisoning is short but includes most of the common causes of mortality. This book is recommended as an excellent textbook of pediatrics.

PRINCIPLES OF DISABILITY EVALUATION by Wilmer Cauthorn Smith, M.D., Chief Medical Advisor, Oregon State Industrial Accident Commission; Fellow, American Association for the Surgery of Trauma. pp. 210, 1959, J. B. Lippincott Company, Philadelphia and Montreal.

With the ever increasing trend to cover workers by insurance a sound understanding of principles of disability evaluation is becoming increasingly important. Many states have Workmen's Compensation Commissions. Arkansas has an excellent organization and many Arkansas physicians are called upon to evaluate the degree of disability of patients; they are also asked to determine whether or not the disability is the result of injury sustained while at work. Dr. Smith's textbook is a very good review of the problems involved in disability cases. This book is recommended to the practicing physician as a good text on disability evaluation. It is not as detailed as many texts and, for that reason, probably should be considered a supplementary volume rather than a standard reference on this subject.

TRAUMA. Harrison L. McLaughlin, M.D., Professor of Clinical Orthopedic Surgery, College of Physicians and Surgeons, Columbia University. PP 784, Illustrated, 1959, W. B. Saunders Company, Philadelphia and London.

With the ever increasing number of accidental injuries, especially automobile accidents, a thorough knowledge of trauma becomes more and more essential to the practice of general medicine. The treatment of traumatic cases has become virtually a specialty in some large community hospitals and, indeed, is more than a study of orthopedics. Dr. McLaughlin's textbook emphasizes the orthopedic aspects of trauma as would be natural considering his specialty of orthopedics. Other chapters are well written by outstanding authorities. This book is a convenient guide to the fourth year medical student and to the house staff members who need guidance in the care of traumatic cases. It is probably a very worthwhile book for the general physician. It is well illustrated and the general format of the book is good. This book is recommended as a guide to the treatment of traumatic cases.

Answer to What Is Your Diagnosis

LEUKEMIA—CHRONIC LYMPHATIC

This patient is a 6-year-old colored male admitted to the hospital on November 11, 1956, with a history of pain in the ankles, knees and hips to such a degree that he was unable to walk. He had also fever and chills in September as well as progressive weight loss.

Laboratory work revealed a WBC of 38,000 with 99% lymphocytes prior to treatments. Bone marrow studies revealed only lymphacytic cells with 95% mature lymphocytes and 5% blast forms.

X-ray features are the typical findings of leukemic proliferation of the bone marrow causing extensive destruction of bone particularly in the metaphyses of the distal femora and also in this case periosteal elevation along the upper femora.

TUBERCULOSIS ABSTRACTS

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Survival in Lung Cancer

By Katherine R. Boucot, M.D., Utako Horie, M.D., and Martin J. Sokoloff, M.D., New England Journal of Medicine, April 9, 1959.

Data are presented on 250 consecutive cases of primary bronchogenic carcinoma from two Philadelphia survey units. The five year survival rate (17%) was calculated from the date of the first abnormal film. A plea is made for semiannual chest X-rays of asymptomatic older persons.

Despite a marked improvement in operative mortality five-year survival rates for primary lung cancer range between 4.1 and 9.6 per cent. This may be due to an inherent biologic tendency to early metastasis, to late diagnosis or to inadequacy of current therapeutic measures. Little is known about the natural history of bronchogenic carcinoma. Tumors vary in rates of growth and in invasive and metastasizing qualities.

A major difficulty in the whole field of prognosis is the lack of a classification of lung cancer that would permit comparison of different series in the same manner in which cases of tuberculosis can be compared according to extent of disease. Surgeons have reported five-year survival rates of about 35 per cent for cases resected while lesions are localized, in contrast to 4 to 9 per cent for resected patients whose cancer has spread. Such figures place the burden of earlier detection upon physicians who see patients with cancer before surgeons see them. Periodic X-ray examinations of the chest are the only current approach to the detection of lung cancer in asymptomatic persons. It is important to stress this because of the current anxiety about radiation hazards. Lung cancer is a fatal disease. One must balance the risks of failing to find this illness early enough for curative resection against the theoretical risks of leukemia and osteogenic sarcoma.

METHOD

Two hundred and fifty consecutive cases of primary lung cancer surveyed at two official Philadelphia chest X-ray units between February, 1947, and December, 1956, were followed through March, 1957. No case was lost to follow-up study. In addition to the usual data an attempt was made to classify the types of abnormalities appearing on the first abnormal X-ray films and to correlate them with survival rates. The clinical diagnosis of concomitant active tuberculosis was accepted only if there was more than one positive sputum report. Survival rates were based on five years when numbers were adequate, otherwise on three.

RESULTS

Over-all Survival. The five-year survival rate was 17 per cent, well above that reported by surgeons. It is noteworthy that one man lived for nine years after his first abnormal film despite not having had a resection.

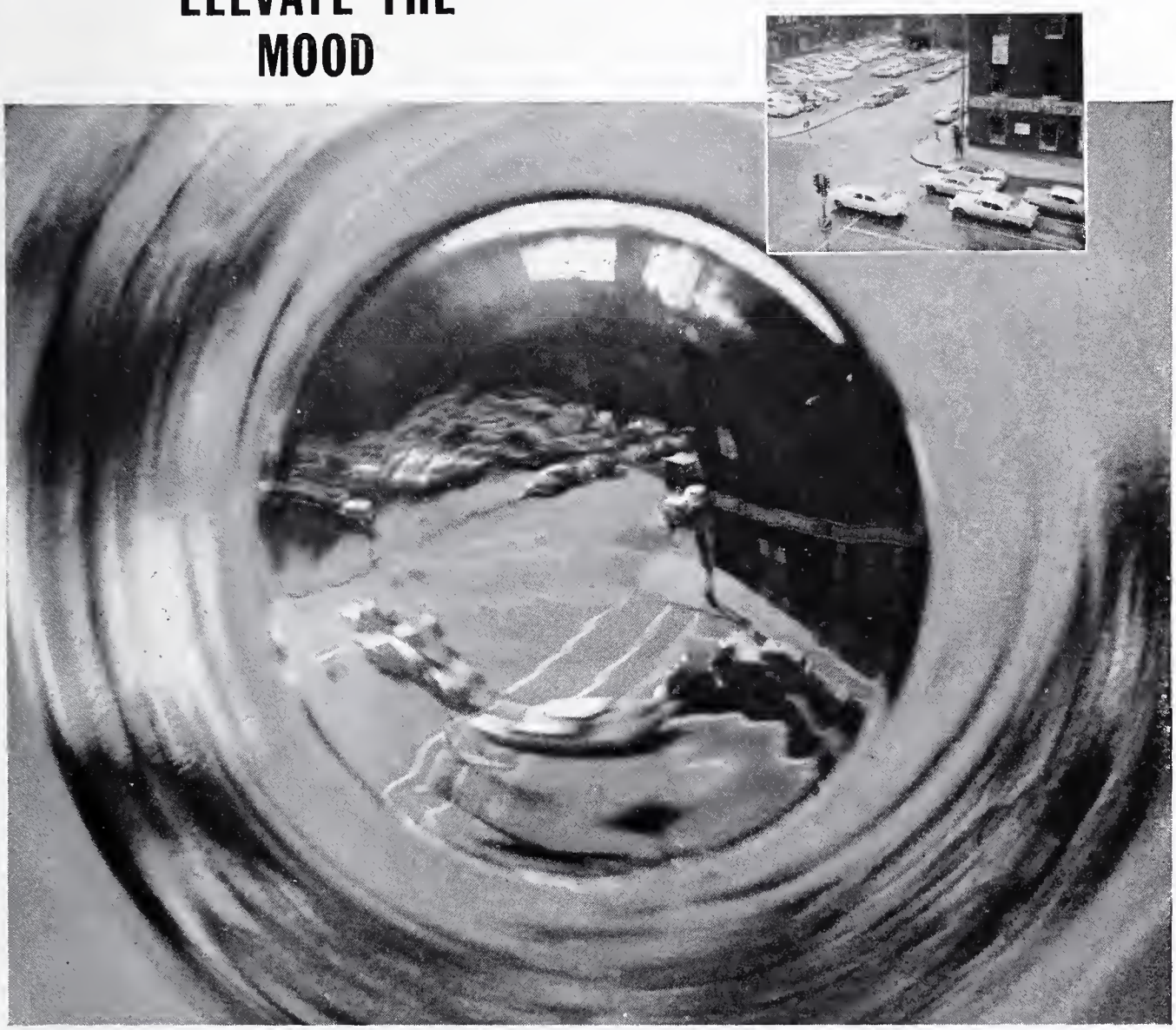
Survival According to Operation. Of the 250 patients, 133 were explored, and 73 were resected. The five-year survival rate in the small group (30 cases) with resection in the study long enough to calculate such a rate was 37 per cent—about the figure reported by surgeons for patients resected while their tumors were still localized.

Survival According to Age. The five-year survival rate was 20 per cent for 59 persons over the age of fifty-five, as compared to 12 per cent for 41 under that age. No regular pattern of survival in relation to age is reported.

Survival According to Race. There is an impression in the literature that there is less cancer in Negroes than in whites. This has not been the experience of official Philadelphia surveys, in which the prevalence rate for men over forty-five is 422 for nonwhites as compared to 215 per 100,000 for whites. Similar results have been reported by the Philadelphia Pulmonary Neoplasm Research Project.

Tissue Type in Relation to Sex. Of the 228 men in the study, 54 per cent had squamous-cell cancer; only four of the 22 women had it.

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*Pratt, R. T. C., and McKenzie, W.: Anxiety States Following Vestibular Disorders, Lancet 2:347 (Aug. 16) 1958.

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Research in the Service of Medicine **SEARLE**

If squamous-cell carcinoma is related to exogenous carcinogens, the greater proportion of squamous-cell carcinoma in men may be due to a greater industrial exposure. However, the small groups involved in this study are not statistically significant.

So far as survival is concerned, squamous-cell carcinoma seems to be a different disease from adenocarcinoma and undifferentiated carcinoma. Not only are over-all survival rates better, but patients live longer after resection.

X-ray Classification for Prognostic Purposes. An elaborate classification was set up, but the only important correlation with prognosis was between tumors arising as solitary nodules and all other tumors.

Bronchoscopic Findings. Of the 213 patients given bronchoscopic examinations only 44, or 21 per cent, had normal gross findings. Cytologic specimens were normal in 35. The prognosis of this group was markedly better than that for the group with abnormalities on either gross or microscopical study.

Clinical Status. The survival of patients with cancer is related to their clinical status at the time of the first film abnormality. Fifty-eight per cent of 43 asymptomatic patients lived for three years; the figure was only 9 per cent for the 80 patients with clinically manifest disease.

DISCUSSION

There is widespread discouragement over the survival of patients with lung cancer. Surgeons have never achieved five-year survival rates better than 10 per cent, probably because of the late stage of the disease by the time of diagnosis. However, there is evidence that efforts to detect cancer early are rewarding. The 17 per cent five-year survival rate in this study is dated from the first radiologic abnormality at the cancer site. More than half the asymptomatic patients in our study lived for three years. Patients with resection before evidence of metastasis also have a better prognosis. In view of the current hysteria about radiation, it is extremely important to stress the effectiveness of periodic X-ray study of the chest for asymptomatic persons in the cancer age group. Early detection is the only key to cure.

Evaluation of therapy is rendered difficult by the lack of a uniform method of reporting survival rates.

Another problem in evaluating results is the paucity of basic data. Unless actual numbers of cases as well as percentages are presented, the true situation cannot be assessed.

The problem of "erroneous negative" X-ray reports is serious. Minute lesions are too often missed. Reduction of film-reading errors would materially improve survival rates.

A third problem is that of false reassurance when bronchoscopic or cytologic findings are normal. In the presence of otherwise undiagnosable abnormalities in older persons, such negative studies should not be construed as proof against carcinoma.

Pending the availability of cancerocidal agents, enhanced efforts to detect early lung cancer are of the utmost importance. These include semiannual X-ray examinations of the chest of asymptomatic persons in the cancer age group who have respiratory symptoms. Meticulous prolonged follow-up study should be directed toward older persons with pneumonias even if response to antibiotic therapy has been prompt. Radiologists should over-read any X-ray abnormalities in the chest films of older people. Cancer should be suspected unless prompt proof is forthcoming that the lesions are benign.

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Prevention of Deaths from Penicillin

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Penicillin causes more deaths than any other drug. Deaths from immediate reactions to penicillin continue to occur. Seven hundred and fifty tons of penicillin are produced and consumed annually.

In 1956 Feinberg & Feinberg (1) estimated that more than 1,000 deaths had already occurred from penicillin. Welch and associates (2) in their excellent paper on "Severe Reactions to Antibiotics" surveyed 800 hospitals and interviewed 1,600 physicians, comprising ⅓ of the hospital beds in the United States. They recorded 2,517 reactions to penicillin. Of the total number of reactions 901 were considered life threatening. There were 83 deaths representing a mortality rate of 9 per cent of the latter. None of these 83 deaths had been recorded in the literature. Penicillin was responsible for 84 per cent of the antibiotic reactions.

We believe that most of the deaths from penicillin can be avoided. The mass of literature published on the subject has done little to clarify the problem of penicillin reactions. In fact, it seems to us to have created more complicated and hopeless problems for the practitioner, not the least of which is the confusion concerning the value of the skin test as a precautionary measure. There are several reasons for this confusion. Some writers on the subject have spoken of anaphylaxis while the reactions described were clearly the delayed serum sickness type. Without describing the reactions many evidently have assumed all immediate reactions to have been anaphylactic. Others have designated as anaphylactic cases which, in our opinion, are clearly not anaphylaxis.

It seems to us, as it does to other observers — Batchelor, Horne and Rogerson, (3) Bell, (4) Schroeder and Powell, (5) and Lewis, (6) that in addition to the anaphylactic reaction there are other types of immediate reaction to penicillin. Some of these immediate reactions were very alarming and some resulted in shock. Suggestions of the causes of this anaphylactoid reaction have been (1) venipuncture with a high cerebral concentration of procaine, (2) high cerebral concentration of penicillin from accidental intravenous injection, and (3) emboli of agglomerated crystals accidentally entering a vein. We have recognized the above anaphylactoid type and would like to add another which we believe to be hysteria with syncope. We consider the best evidences of anaphylaxis to be pruritus, urticaria, dyspnea, cyanosis, and unobtainable or very weak pulse and blood pressure.

When writing of skin tests, such a term as "a positive skin reaction to an intracutaneous test" means nothing unless the technique, the volume, the strength of the testing material, and the reaction itself are clearly described

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and defined. As a result, such a statement as "anaphylaxis can occur in the presence of negative skin tests" (Maganzini) (7) has been interpreted to mean "negative skin tests have no value." Therefore, it is assumed that skin tests are worthless even though their efficacy has been demonstrated with good clinical evidence by several of our most able authorities. (1, 8-10) Smith (8) gave 600,000 units of penicillin to 778 patients following negative scratch tests with only one slight immediate reaction which was readily controlled by an injection of 0.30 cc of 1:1,000 aqueous epinephrine.

We do not feel as confused by our own experience with skin tests, which is considerable, as we do by the literature on the subject. Our work has done little to change the status of our knowledge of the immunological processes involved. Sherman, (11) referring to the immunology of penicillin reactions, stated in 1953, "Nothing is really known — All of the ordinary rules that you would expect to apply seem to be remarkably unreliable in relation to penicillin reactions." We agree with this, with the reservation that we do know enough to avoid some deaths.

Preventive measures which have been suggested are: (1) inquiry into the family or personal history for atopy (bronchial asthma, hay fever, etc.); (2) history of any former symptoms of urticaria, asthma, or unusual local edema after penicillin; and (3) skin tests. While we agree that the first two have possible importance, they would have caused little suspicion in several of the cases we have seen. Objections which have been made to skin testing are: (1) they are dangerous; (2) they require too much time and trouble; and (3) they are unreliable. We emphatically deny the validity of all three. The intracutaneous test frequently advocated is somewhat dangerous, though to nothing like the degree of giving a dose without the test. The scratch test properly performed is not dangerous. The time necessary for this test is 10 to 15 minutes, all but 3 or 4 of which can be used in attending to other duties. Making fresh solutions for testing is neither necessary nor desirable unless immediate sensitivity is suspected. The "depot" type seems to react as well as the soluble penicillin.

Concerning the reliability of skin reactions, if most of the fatal cases represent anaphylaxis, as is generally believed, we know that the great majority will give prompt and strong reactions to the scratch test, the technique of which we shall describe. We have found in the literature only one fatal case in which the patient had reacted n e g a t i v e l y to a scratch test, but the conjunctival test had been positive one week before death. Severe reactions were reported by Maganzini (7) in patients who failed to react by passive transfer. We do not consider this test as sensitive or as reliable as the direct scratch. We have knowledge of one patient who did react to the scratch test and died later, presumably from anaphylaxis, a few minutes after receiving an injection of penicillin.

Since a near fatal penicillin reaction in our office in early 1954, every patient who has been tested with any antigens has also been tested with soluble penicillin G, 20,000 units per cc. Individual patients known or suspected by others to have had anaphylaxis have been tested first with weaker solutions and studied by serial dilutions and by passive transfer. For routine testing we use the scratch technique because of its simplicity, ease of performance, safety, and the absence of confusing false positive reactions.

We realize that we may be criticized for routinely testing with penicillin on the ground that we may sensitize some individuals. From our own experience and from that of others, we believe this risk to be negligible or non-existent. We interpret a reaction as positive only in case of a definite wheal with erythema. Itching has been a constant feature of all positive reactions we have seen, though itching alone is not considered important. As in pollen sensitive cases the intensity of the reaction varies considerably.

Our basis for this presentation is over 7,000 patients tested routinely by scratch technique, plus the study of 15 cases which we believed from our own observations, or from the history as given by another physician or from the patient, to have had anaphylaxis from penicillin.

We have investigated several other cases purported to have had anaphylaxis but whom we believe, after our study, to have had other types of immediate reactions, including syncope. Of the 15 patients whom we knew or strongly suspected of having had anaphylactic reactions, 14 reacted strongly to the scratch test, and one, a 5-month-old child, had a weakly positive reaction. In each case whealing was evident in less than 5 minutes, and in 2 cases in a matter of seconds. This agrees with the report of Siegel and Coleman (9) who demonstrated reagins (antibodies) in 11 successive cases of anaphylactic reactions to penicillin.

Of these 7,000 and more patients tested routinely we have seen only 7 positive reactions or 0.1 per cent. Three of these rapidly developed large wheals. Four showed definite whealing, developing more slowly, smaller in size, and of smoother contour. One of the acute reactors knew penicillin would be dangerous for her. She had had to stop washing syringes used by her husband to give penicillin to his cattle. It gave her urticaria and asthma. Another was a cattleman who had frequently handled penicillin but did not know he was sensitive. The third had had penicillin two years before without symptoms.

We have not seen the extreme degrees of sensitivity reported by Coleman and Swineford (12) and by Bierlein. (13) We have seen 2 patients who reacted positively by scratch test to Lilly's Salk Vaccine and to 200 units per cc of penicillin G. One reacted positively but not strongly to 0.02 cc of a 20 units per cc solution given intracutaneously. This woman had had an anaphylactic reaction to penicillin 3 years previously. A few days before we saw her she had developed urticaria, asthma, and impalpable pulse immediately after entering the office of her local physician, where an ampule of penicillin had been spilled on the floor the day before. She had not known of this incident.

We wish to emphasize that the skin test has value only in anticipating the immediate, dangerous anaphylactic reaction. There is no test which will predict the serum sickness type of reaction.

It has only recently dawned on the profession that children may react to, and even die, from penicillin reactions. Rosenthal, (14) among others, has reported such deaths. Three of 30 deaths in New York City, which he reported, occurred in persons under 2 years of age. Incidentally, his article is well worth reading by physicians for other reasons, including the legal aspects of the subject.

The fact that a patient is taking steroid therapy is no insurance against anaphylaxis, as Bernstein and Lustberg have shown. Antihistaminics given with penicillin give little or no protection.

Skin testing is by no means our original idea, though we started it because of our own experience. Siegel and Coleman, (9) Smith, (8) Kern and Wimberley, (10) and Feinberg and Feinberg, (1) among others, have emphasized its value.

We urge general use of the following simple procedure, which also is not original: Load the syringe with the preparation to be used. Put a droplet on the volar surface of the forearm. Make a deep scratch through this with the needle point as one would for a smallpox vaccination. Wait 10 minutes. If a wheal should begin to develop immediately (in less than a minute), rub 1:1,000 aqueous epinephrine (Adrenalin) into the scratch. If dyspnea or urticaria or generalized itching should develop, give 0.50 cc of 1:1,000 aqueous epinephrine subcutaneously. A tourniquet could be applied above the scratch though we think this hardly necessary. If any patient is suspected from previous experiences or history of being immediately hypersensitive, we of course test first with weaker dilutions. If the scratch test is negative we suggest following it with dilute intracutaneous tests.

In anaphylaxis, death comes quickly. Aqueous epinephrine (1:1,000) stands alone as the only drug acting quickly enough and effectively enough to prevent it. Our admonition is to give 1.0 cc subcutaneously at once at the first suspicion of any systemic reaction. This may be repeated as needed. Then one may take time for intravenous therapy with another 0.25 cc of 1:1,000 aqueous epinephrine injected slowly by first drawing blood in the syringe, soluble steroids,

and even antihistaminics. None of the steroids, even when given intravenously, will begin to act in less than one-half hour and more often not until three hours. We have used artificial respiration, suction, and oxygen in one case with benefit, we believe, after epinephrine. Levophed (l'norepinephrine) may be helpful in maintaining blood pressure.

Penicillinase (Neutrapen) acts too slowly to help in the immediate severe reaction, as stated by the manufacturer.

CONCLUSIONS

We believe that a properly done skin test with penicillin will enable us to avoid most severe reactions and some deaths from penicillin therapy.

Aqueous 1:1,000 epinephrine (Adrenalin) is the only drug acting quickly enough to be effective in case of an immediate allergic reaction.

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Radioactive Iodine In The Treatment Of Hyperthyroidism*

ALBERT WEINSTEIN, M. D., F.A.C.P.*

The treatment of hyperthyroidism has presented a changing scene during the last thirty years. I am sure that there are some present who witnessed the time when hyperthyroidism was handled by a long period of bed rest, high caloric feeding and phenobarbital. This approach was based on two facts; one, the realization that thyrotoxicosis was in many a self-limited disorder, which would eventually cease to be active; and two, because the results of surgery were not ideal. There were some complications such as damage to the recurrent laryngeal nerve, or removal of the parathyroids, which gave undesirable post-operative results, but in particular the recurrence of the disease, due to incomplete removal of the major portion of the gland resulted in the necessity of repeated operations.

The expectant treatment of bed rest was often effective, but the major criticism was that the patient ordinarily was in such a poor state of nutrition at the end of the prolonged bed rest and in addition had osteoporosis or thyrotoxic heart disease, that not many were willing to go along with this concept of restricted treatment.

In the middle 1920's, the surgical treatment was improved in the main by the intelligent use of the barbiturates as preparatory medications pre-operatively, and by the introduction by Plummer of Lugol's solution as a drug capable of producing excellent, even though only temporary, control of the active hyperthyroidism. The technic devised by the Cleveland, Ohio, group, headed by the late George Cride, involved the "stealing" of the thyroid. That is, the patient would have several basal metabolism rates run with a portable machine in the patient's own room. Then when properly prepared with iodine by mouth, the basal metabolism apparatus would be slyly substituted by a gas-oxygen-ether machine, and the unaware subject would be asleep in his own bed before he realized that this was it. Consequently, he had no pre-operative period of apprehension. The surgical team would then enter and actually do the thyroidectomy in the bed-room. I assisted in several of such operations, and it was truly dramatic. However, as the barbiturates were elaborated they proved to be such fine pre-operative calming agents that theft of the thyroid gland soon went out of style.

For a few years thyrotoxicosis was treated by deep x-ray therapy, but this method was not sufficiently standardized to become popular. Its design was to destroy the secreting cells of the thyroid gland, and consequently cut down on the amount of the thyroid hormone produced and, therefore, reduce the degree of activity of the thyrotoxicosis.

In 1942, a new vista in the treatment of thyrotoxicosis was opened when Hertz and his collaborators reported (1) the treatment of thyrotoxic patients with radioactive iodine. The initial results were most encouraging. However, the isotope was I-130, which did not have the effectiveness of our presently available, I-131, and was prepared with great difficulty and expense at the Cyclotron in the Massachusetts Institute of Technology.

There followed rather rapidly a widespread use of I-131 following the completion of the Manhattan Project at Oak Ridge, Tennessee, which made available larger amounts of radio-active iodine. Today radio-active iodine has not only an accepted place in the treatment of hyperthyroidism, but in areas where laboratory facilities are available it has to a great extent actually replaced surgery as the method of choice in the treatment of thyrotoxicosis.

The method of action of radio-iodine in the treatment of hyperthyroidism is based on the fact that the thyroid gland selectively traps iodine of any variety.

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**Presented at The Arkansas Academy of General Practice Meeting, Little Rock, Arkansas, October 16, 1958

Therefore, when radio-active iodine is ingested it is held within the confines of the thyroid cells and proceeds to bombard these cells with radio-activity for the next several days. The net result is the same as if one had placed a therapeutic x-ray tube within the thyroid gland itself and treated it with the roentgen ray. This is infinitely more effective than the x-ray; in addition, since the radio-iodine is neatly placed within the gland cells themselves, the amount given can be adequately controlled, and the amount of the radiation carefully calculated. These Beta rays are limited to two millimeters in distance of travel, so that the parathyroids are not damaged, the recurrent laryngeal nerve, the trachea, and even the overlying muscles, fascia and skin are not altered by the radio-activity.

What then are the indications, the criticisms, and the possible complications of this form of treatment of hyperthyroidism.

INDICATIONS

(1) Post-operative recurrent thyrotoxicosis.

All observers are in agreement that this is the prime situation for the use of radio-iodine. The patient has had one or two surgical procedures ordinarily and usually by virtue of the lack of removal of an adequate amount of the gland or because as is seen occasionally, of the abnormal position of accessory thyroid tissue, the disease has recurred. By using radio-iodine the difficult secondary dissection is avoided and the end result is usually more desirable.

(2) An aged individual who is a poor operative risk by virtue of undernutrition, heart disease, recent myocardial infarction, laryngeal palsy, severe emotional disturbance, severe hypertension, lung, liver or renal disease, or for other reasons.

This, too, is an ideal situation in which to substitute radio-iodine for surgery. The shock of the procedure is negligible, there are no major reactions as a rule and, therefore, the offending complications can be neatly circumvented.

(3) The presence of malignant exophthalmos.

By malignant exophthalmos, I mean a progressive exophthalmos with all of its attendant hazards of erosion, and infection of the cornea and other complications which may threaten the integrity of the eye and consequently the eye-sight.

When such a patient is treated by surgical excision of the thyroid, experience shows that more than fifty per cent will experience a definite increase in the degree of exophthalmos. The results following radio-iodine are infinitely better in regard to this particular complication.

(4) Impractical long pre-operative preparations.

The longer a patient remains hyperthyroid, the greater the probability that he may develop a thyroid crisis, thyrotoxic heart disease, progressive exophthalmos, etc. The longer a patient remains under treatment with the anti-thyroid group of drugs, such as thiouracil compounds, the more liable is he to develop agranulocytosis, jaundice, or skin rashes. Moreover, patients who have been treated for long periods of time with rest, and anti-thyroid drugs, are more likely to be very resistant severely sick patients, who eventually will need drastic complete treatment, either radio-iodine or surgery.

(5) Carcinoma of the thyroid.

This is an involved and difficult field of treatment in the preparation of such a patient for future surgery. The non-hyperplastic thyroid must be made to pick up radio-iodine, by giving thyroid stimulating hormone and excessively large amounts of radio-iodine are necessary.

COMPLICATIONS

(1) The development of cancer years later in radio-active exposed tissue.

This possibility has been used by some for the reason they state that radio-iodine should not be used in an individual under the age of 40. Since the change, if it does occur, will not be seen for twenty to thirty years, a 40 year old individual is less apt to survive to such an expectancy and experience this complication.

It is true that osteogenic sarcomas have been produced following long exposure to radium, lung carcinoma by the inhalation of radon, liver sarcoma by thorotrast, and skin carcinoma from gamma x-rays. However, two features characterize this tendency to cancer. First,

there has been a latent period of ten to twenty years between the radiation exposure and the appearance of the malignancy. In addition, this prolonged exposure has been to radiation of low intensities. The value of maximum allowable whole body radiation has been fixed by the National Advisory Committee (2) on radiation at 0.05 R per day. This amount is exceeded in the thyroid tissue for a short time, (one to thirty) days in radio-iodine diagnostic and therapeutic work. However, compare this to an average gastro-intestinal x-ray examination where there results in an exposure 15-24 roentgens. As yet no one really knows whether the radio-iodine treated thyroid in the future will be the seat of cancer, since this material has only been in use since 1941. I can point out that thyroid cancer has developed in rats treated with thiourea, but cancer has not been produced in humans so treated, and there are many many patients with hyperthyroidism who have received these anti-thyroid compounds for years without any hesitancy on the part of the doctor.

There has been an apparent increase in the incidence of thyroid cancer in young adults who had received x-ray treatment to the mediastinum during infancy for an enlarged thymus gland. Also it was thought that those physicians, who used x-ray machines in their daily practice, are more likely to develop leukemia. Recent reviews, however, seem to negate the results previously brought out.

After digesting the literature, since my personal experience with radio-iodine goes back only to 1949 (3), I believe that there is no substantial evidence that would cause me to hesitate to treat a patient under 40 years of age with hyperthyroidism with radio-iodine for fear that he might later develop cancer of the thyroid.

(2) The development of hypothyroidism has been noted in about 10 per cent of the patients treated.

Later I will indicate why this occurs, although hypothyroidism is seen at least this frequently in patients treated surgically.

(3) Under-treatment is seen more commonly as one begins this method of treatment and is the result of our natural tendency to conservatism. As experience is gained in estimation of the size of the gland, this incidence is reduced. It is important to treat adequately at the first attempt since repeated treatment requires larger amounts of radio-iodine and makes successful therapy less likely.

(4) Thyroiditis may be manifest for a few days following the administration of radio-iodine. The thyroid becomes slightly enlarged and tender to palpation. This is, however, uncommon in occurrence and brief of duration.

(5) Theoretically a poorly prepared patient may develop a thyroid crisis within a day or two after the administration of radio-iodine, but I have never seen this happen.

NOW FOR THE CRITICISMS OF RADIO-IODINE

(1) It requires the presence of specialized machines, and even more important specialized personnel. This objection is being overcome rapidly. The radio activity counters are being produced in smaller, more compact and less expensive form. In addition, medical and technical personnel are being trained in increasing numbers each year. Practically every up to the minute x-ray department now includes in its training program a period of residency in radio-isotope therapy as well as deep x-ray and cobalt therapy.

(2) Nodular goiters, very large diffuse goiters, and substernal goiters are not available to treatment. They usually do not respond to radio-iodine, and in addition, nodular goiters may in 1-10 per cent of the patients reported, harbor a malignant nodule. This is particularly true if an isolated nodule exists, but this is almost never noted in a toxic nodular hyperthyroidism. In other words, a nodular non-toxic goiter should be treated surgically. The same goes for a substernal goiter.

(3) Pregnancy.

The fetal thyroid by the twelfth week of gestation is able to accumulate the radio-iodine administered to the mother. This iodine gets across the placental membrane and the possibility of the fetus being destroyed, or of developing severe hypothyroidism exists. There are instances in the literature where pregnant women with severe hyperthyroidism or

cancer of the thyroid received large amounts of radio-iodine and had a normal pregnancy, normal delivery and a normal child, which were followed for years with no evidence of abnormalities later appearing in the child.

Hyperthyroid women notoriously have an increased menstrual irregularity, decreased fertility and a higher than normal fetal loss through miscarriage or stillbirth. They may, therefore, get pregnant soon after the successful use of radio-iodine and some interesting medico-legal problems have arisen when problems occurred in the fetus of the recently treated mother.

(4) Difficulty in estimation of correct dosage of radio-iodine.

This is a valid criticism. One can, with great accuracy, calculate the amount of radio-iodine that a given thyroid gland will pick up. However, if a patient has had iodine or an iodine containing preparation, the use of radio-iodine is precluded since the gland is already saturated with iodine, and will not trap the radio-active iodine salt. This applies to stable inorganic iodine, such as Lugol's solution, to the dye used in cholecystograms, intravenous pyelograms, or myelograms. The use of these agents will prevent the employment of radio-iodine as a diagnostic or therapeutic tool for some several months, to say nothing of what it does to the protein bound iodine level.

If iodine has not been given recently, the patient takes, on an empty stomach, a capsule containing 50 microcurries of carrier-free radio-iodine. Twenty-four hours later, the thyroid neck area is counted, and the percent of radio-iodine trapped by the thyroid is determined. Normally 15-50 per cent of the amount given is held. Variations from these figures tell of an under or over-active thyroid gland. If the decision is made to treat, additional counts are obtained at 48 and 72 hours. In this way the effective half life is determined. Then comes the procedure which is subject to greatest error; namely, estimating the size of the thyroid gland. This is done by palpation and it follows that the greater the experience of the observer the greater his accuracy in estimating gland size. Since the dosage calculation is based in the main on the gland size, the percentage uptake and the biological half life, it is easy to see that there are grave opportunities for real error. The overall attempt is to give enough radio-iodine after these calculations are made to deliver to the gland about 10,000 roentgen equivalents. This calculated amount is then obtained from the Abbott Laboratories in Chicago, who have a working arrangement with the Oak Ridge plant to process this material, and given by mouth.

I might point out here, if patients are severely hyperthyroid, it may be good judgment to keep them on an anti-thyroid drug, such as Tapazole, for several weeks until the available amount of thyroid hormone is considerably reduced before the thyroid cells are cauterized by radio-active iodine with a consequence release of large amounts of hormone into the circulation with disastrous results, such as a thyroid crisis. If a patient has been on an anti-thyroid drug, it should be discontinued 6-7 days before radio-iodine is used diagnostically or therapeutically.

(5) The beneficial results are delayed.

Following the use of radio-iodine the thyroid gland begins to shrink in size and the secreting follicular cells are slowly replaced by fibrous tissue. This results in a gradual lowering of thyroid activity and a gradual decrease in the degree of thyrotoxicosis. The ultimate therapeutic effect requires 4-12 weeks to develop. During this period the patient continues to suffer with thyrotoxicosis albeit in decreasing intensity. The way we obviate this is to give Tapazole or stable iodine, preferably the former, beginning about four weeks after the radio-iodine is given. I-131 has a half life of eight days. That means that 50 per cent of its activity has been executed in the first eight days following its administration. The remaining 50 per cent of the effectiveness continues over the next few weeks, and 99 per cent of the total amount given is consumed in about fifty-two days. The giving of Tapazole or iodine four weeks after the administration of radio-iodine, therefore, would block very little total radio-iodine activity.

ADVANTAGES

(1) The patient is spared a surgical procedure. This is not as much an advantage when viewed by a surgeon, as when weighed by an internist.

(2) No hospitalization is required.

(3) It is less expensive.

(4) Laryngeal nerve and parathyroid glands are not exposed to injury.

This, then, is a method for the treatment of hyperthyroidism which is gaining popularity year by year. I believe this popularity is deserved.

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The Physician's Role as A Part of The Community Team*

YVELIN GARDNER*

I was interested in Dr. Block's closing remarks that physicians should not forget that, in addition to being professional men and specialists, they are individually members of society and the community, and react to attitudes and accept concepts much as other members of the community. I think this is a basic reason for the fact that physicians have been somewhat reluctant to take on alcoholics as patients in the past. I think there are three main reasons for this reluctance:

First, the fact that public attitudes toward the person with alcoholism have reflected a feeling of stigma and indicated that the person with alcoholism desires to be in the condition he finds himself and doesn't want to change. The idea of excessive drinking, to the point of alcoholism, has been considered a moral question, rather than a medical one.

Secondly, the alcoholic, in the main, over the past has not been too successful a patient for the general practitioner. Because we lacked present-day insights into his condition, because we did not have the medical adjuncts which are available today, and because of the attitudes which I have mentioned, it seemed to the physician that he would merely give the alcoholic some medical attention, but that he would be bound to return within a reasonable time in the same condition.

Finally, physicians have recognized the fact that the alcoholic has many adjustments to make and that his rehabilitation and recovery involve a long-term treatment which he is not in a position to give.

Thus, too much real interest in the alcoholic patient has not been shown generally by practitioners.

Today, we find ourselves in a somewhat different situation. Attitudes are changing—the recent Elmo Roper poll indicates that 58% of the public accept the alcoholic as a sick person. Professional interest has been growing, and many more facilities and resources for the alcoholic are available today than have been in past years. With the advent of outpatient alcoholic clinics, with more hospital beds available, with new medical adjuncts which are effective and not dangerous for the alcoholic, and more articles in medical journals, professional interest has begun to change and grow along with that of the public.

Also, we have the *evidence* of recovery: In over 200,000 alcoholics—through Alcoholics Anonymous, clinical treatment, and various forms of psychotherapy, which have given the practitioner a realistic feeling that alcoholics can be brought to recovery and do not necessarily need to be considered "nuisance patients" for whom there is very little evidence of favorable prognosis.

Finally, a better understanding of the nature of the problem, in spite of its long-term implications, combined with a growing number of resources to team up with the physician, in the total treatment of the case, have made it unnecessary for doctors to feel that the case will inevitably return to him, with the patient in a further deteriorated condition. It is because of the fact that there is a growing number of available resources and helps for the practitioner that we believe doctors should be aware of these other "members of the team" and utilize them in the fullest possible manner.

The physician need not be fearful of lengthy involvement with this type of patient, if he makes himself aware of the other resources in the community which exist and which can help, *through referral,* with the long-term adjustment. Thus, working as part of a team, effective aids in the long-term therapy will reduce the likelihood of such patients being obliged to return again and again, in the acute phase, as seemingly hopeless cases.

The development of trained resources, capable of ministering skillfully to the

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needs of the alcoholic patient is gradual, and although much may seem to be still necessary in the way of developing such resources here in your state of Arkansas, some of these presently do exist, and others will be developed through growing public interest, through gradual education of the public, and especially as the work of the Arkansas Commission on Alcoholism correlates and develops this interest and these resources.

I feel strongly that doctors can lead the way in aiding such development. Dr. Block pointed out that in Buffalo the Medical Society sparked the movement for better understanding of the alcoholic in the public realm, and as a result of their concerted effort, the western area of New York state has become well-informed on the nature of this malady, and has developed resources for treating it.

What are some of the present and potential resources, which will make up an effective community attack on this program?:

ALCOHOLICS ANONYMOUS — Alcoholics Anonymous today is to be found almost everywhere, in communities large and small. Unfortunately, there is much misconception as to what these groups, successful as they have been, are set up to do. I would like to discuss briefly a few points which indicate what AA is and what it is not. First of all, Alcoholics Anonymous does not endeavor to intrude upon the province of medicine. Their so-called "group therapy" is of a most informal nature, and its effectiveness stems from the fact that alcoholics, who are people who suffer from a common problem and common disorder, can relate and develop a sympathy toward one another, which is difficult to develop in any other setting. They do not attempt to involve themselves in the medical needs of the alcoholic, and when they see someone failing to respond to their ministrations as a group, because of physical needs, always seek out a physician or hospital. They are not a welfare agency, do not provide funds, vocational employment, or shelter for the alcoholic. They do not attempt to seek out persons with the problem of alcoholism, whose problem is obvious to all around him but not yet accepted by himself, and win him over to membership in their group. They only seek to serve the alcoholics who want help and want it through their program. They are not a "religious" group, although the ultimate success of their program seems to evolve from the reliance upon a power outside of themselves, whom most of them choose to call God, thus meeting the spiritual needs of a person depleted by the progressive dependence on alcohol. Physicians should know the basic function of Alcoholics Anonymous well enough to explain it to a patient prior to referral, so that it will be acceptable to him, and at least understood by him so that if he makes a choice as to whether or not to utilize this potent resource, he will do it on the basis of true facts concerning the organization. Some physicians, unfortunately, refer all their alcoholics to AA on a hasty basis with the statement, "These alcoholics seem to know how to handle their drunks, and I just turn them over to them." This "Let George do it" attitude can be very unfortunate and also may cause the patient to lose confidence in his physician.

THE CLERGY — It is suggested that the doctor not overlook the help which an understanding clergyman can provide in meeting special needs of certain particular cases. Referral to clergy for pastoral counseling should be done after careful thought and at the right time. Proper timing is most important in this type of referral, but there is no question but that, after a physician has ministered to the patient's physical needs, when he recognizes that the guilt and remorse behind long episodes of drinking over the years have affected the patient's condition, that the ministrations of someone who can ease his spiritual turmoil can be most helpful. Counsel from such competent clergymen can be found, and your Arkansas Commission on Alcoholism will have contacts with such men of the clergy. An alcoholic will accept understanding help from a minister who is not of his own denomination, necessarily, when he senses that the person counseling him understands his problem and has a compatible approach and attitude.

PSYCHIATRY — There is no question that psychiatry is and can be a

strong and vital force in dealing with the problem of alcoholic therapy. Over the years, many psychiatrists have found the alcoholic's drinking interferes with the normal regime of psychotherapy and has learned that usual techniques are not always effective unless altered to suit the initial and immediate needs of this type of patient upon first interview. Those psychiatrists who have learned to gain a rapport with their patients through initial approaches can later apply customary techniques effectively, as long as they have taken time to study and read up on the variation in initial approaches which successful psychotherapists have used in gaining effective results with such patients. I know, since I have encountered them, that there are numerous psychiatrists in this state who are effective with alcoholics and to whom referrals can be made. Here again, your State Commission can be most useful to you.

HOSPITALIZATION — For the acute case, in spite of the splendid advances made in medical therapy in recent years, it may be wise both for physical and social reasons to hospitalize the alcoholic for a short period. Local general hospitals can provide resources for this type of treatment of the acute phase. While such hospital care on a specialized basis is limited in this state, certainly members of the medical profession can and should play an influential role in getting hospital acceptance for alcoholics in the hospitals with which they have connections. Dr. Block mentioned the important Resolution of the American Medical Association and that it is proving a strong force in getting better understanding from hospital administrators and staff on this type of patient; experience in many hospitals has now proved that he is not a "nuisance patient," and there is material and ample evidence to convince your hospitals that this type of patient can be accepted on the same basis as any other patient with valid medical needs. While your State Hospital is cooperating splendidly and accepting cases through Legislative Act 411A, all patients certainly do not need the length of stay involved in these commitments, and while arguments concerning over-crowded conditions will prevail in response to overtures for hospital care on a general basis, a realistic appraisal will indicate that these hospitals are faced with this problem already, and receiving these patients under some other guise, or because of some other malady or accident resulting from the condition of chronic alcoholism.

I hope that I have illustrated satisfactorily by pointing out the above resources, that there is already a community team available to work with the practitioner in his treatment of the acute alcoholic. All this calls for is a little research to locate these resources, and again the office of the Arkansas Commission on Alcoholism can provide such information with a modicum of effort on the part of the physician.

Other potential resources should be developed in this state in the course of time which will further enhance the effectiveness of dealing with this massive problem. The first of these is *the outpatient alcoholism clinic.* Today, there are 118 of these facilities functioning on full or part time basis for the treatment of the person with alcoholism, on an outpatient, ambulatory basis. They play an excellent role in the diagnosis of the needs of the alcoholic, the depth of the problems behind his drinking, and in estimating the needs for the long-term treatment which is indicated. Many of these patients will remain with and return to the clinics on a regular basis for consultation and treatment. The interplay of these clinics in referral is a vital one, and much difficulty and waste motion on the part of general practitioners, Alcoholics Anonymous groups, interested clergy and others can be minimized by having such a facility on a community team. It has been estimated by states which have developed clinic programs to some considerable degree, that this type of facility can screen, diagnose and handle more patients successfully "per dollar" per capita than any other resource. Most clinics, after being well-established with a good clinic staff team, have developed successfully psychiatric group therapy sessions where numerous alcoholics can meet in a group on a compatible basis and larger caseloads can thus be handled satisfactorily.

Although I have spoken already of hospitalization, I do feel that in the future better hospitalization must be developed both on the private and official levels, and as public pressure demands acceptance and treatment of alcoholics, and professional interest in their treatment grows, we will see better private and public resources made available. It would seem to me from my observations at the splendid Medical Center at which this Symposium is being held, that it would provide an ideal setting, when the time is ripe, for a combined in-patient and out-patient program for the diagnosis and treatment of persons with alcoholism, where their long-term as well as their acute needs can be met. I feel strongly that this should be a goal of the Arkansas Commission and the Arkansas Medical Society in planning for the future. Such a program cannot be integrated into the Medical Center, of course, until conditions warrant it, and until personnel is available and the state can perhaps provide some special funds to match the personnel, space and medication provided by the Center itself, for these special services.

In closing, and without wishing to intrude on the medical members who are speaking on this program, I feel strongly that certain definite responsibilities of the practitioner toward alcoholics should be emphasized. The practitioner inevitably encounters a certain number of alcoholics in the course of his work, particularly if there is a "family doctor" relationship. If he is to be successful, and on a practical basis, save himself considerable time and energy in the long run, these factors should be kept in mind:

a) The doctor must believe the person with alcoholism to be a valid patient, as worthy of his time and ministrations as any other, and also one of whom hope of a successful recovery can be held;

b) He should be able to explain the basic nature of the problem of alcoholism to the patient and convince him that he is a sick man and not a sinner. The doctor is in an excellent position—better than any other—to motivate the patient toward a willingness to seek help for long-term adjustment and recovery;

c) He should know the variety of medical adjuncts today available which can be used in a variety of ways to meet the numerous needs presented by persons with alcoholism;

d) At the same time, he should understand the danger of addictive proneness to barbiturates and other addictive chemicals which experience has indicated among alcoholics.

e) Finally, he should investigate and team up with other resources in the community so that his patient will have a better chance of favorable prognosis and recovery, and at the same time, so that he can do his job to the utmost effectiveness.

Therefore, I think it can be safely said on the basis of present day experience, that if we invoke an interplay of the various fields of professional techniques which *are* available among the disciplines, doctors will find that they will not be so involved in lengthy consultations with alcoholics as to interfere with their regular practice, and they will be happy to note that there are other resources and facilities available to share the load with them.

And so, with present day knowledge about alcoholism, the mounting number of medical adjuncts available for treatment, and with the increasing number of resources becoming available and made available in the leading communities of your state, the medical profession need not hesitate any longer in facing this responsibility toward America's public health problem No. 4.

Statement of the American Academy Of General Practice

Re: H. R. 4700, 86th Congress
Health Benefits for Aged Under Social Security
Before Committee on Ways and Means, House of Representatives

R. B. Robins, M. D.
July 17, 1959

Mr. Chairman and Members of the Committee:

I am Dr. R. B. Robins of Camden, Arkansas. I am testifying for the American Academy of General Practice, an association that represents more than 25,000 family doctors. The Academy, which I helped found in 1947, is the nation's second largest medical organization. As a doctor of medicine, I have had for many years a deep interest in governmental matters that relate to the health of my patients.

H. R. 4700 *would* affect the health of my patients, and not for the better.

Accordingly, when the American Academy of General Practice asked me to testify at these hearings, I prepared myself to meet with this Committee and talk about the effect of this proposed legislation on the general practitioner and the patients he treats.

But the day before y e s t e r d a y I changed my mind.

I was listening to this Committee's hearings when Rep. Forand brought up the subject of British medicine.

In the Congressman's view — at least, as I understood him — compulsory national health insurance in that country was, by and large, a success.

It was at that point that I decided to take another approach in my testimony before this Committee, for I had just got back from Great Britain earlier this week.

Ever since 1948, when the National Insurance Scheme and the National Health Service were inaugurated in Great Britain, I have been interested in the effects they would have on that nation's health care. I have, like many other American doctors, read a good deal about it.

And for many years, I had wanted to see the program in action — at first hand. I had wanted to compare it with the quality of health care received by the people of the United States; I had wanted to talk personally with family doctors in Great Britain so that I could obtain an unadorned, undiluted account of how they view medical challenges and problems in their country today. It seemed to me that a look at the British experience, from the standpoint of an American doctor, would give me a yardstick with which to measure the general practitioner's situation in the United States as compared with that of his British colleague.

For compulsory national health insurance here — even on a limited scale — could be the precursor of compulsory national health insurance across-the-board. And on that subject, the British doctor has — whether he likes it or not — become an expert.

I therefore went to the experts. And I got expert opinions during a busy and interesting week devoted largely to private, no-holds-barred discussions with men and women who can speak authoritatively on the present system of giving medical care to the people of Great Britain.

Certainly, no one recognizes better than I that this experience does not qualify me as an authority on medical problems in Great Britain. It does, however, give me a new and fresh insight into British medicine as it is now being practiced. I am grateful for the opportunity of being able to pass these impressions on to you, for what I learned from family doctors in Great Britain has a direct bearing, it seems to me, on the legislation now under consideration by this committee.

In candor, I want to make it clear that as a small-town family doctor, I always have been suspicious of inflexible, political-type medicine. However, before I

left on this journey, I attempted to clear my mind of preconceived beliefs and ideas. Perhaps no man can really do this; I can only tell you that I tried.

So I went to Britain determined to spread out the facts on the table, family-style, and to do my utmost to appraise them in a realistic, common-sense way.

I want also to take this opportunity to express my appreciation to just a few of the many people who were helpful to me during this trip. My good friend, Senator John L. McClellan of Arkansas, was most helpful in assisting with transportation and passport arrangements. While in London, I was extended the greatest of courtesy by Mr. James Symington, son of Senator Stuart Symington and a staff official at the American Embassy.

I want, in particular, to extend my thanks to the many doctors of Great Britain who spoke frankly and informatively regarding the problems with which they are intimately concerned.

Now . . . for the big question.

What about the quality of medical care in Great Britain? Has it deteriorated?

In my opinion, it obviously has deteriorated.

For example, the doctor's offices, which are called surgeries, are filled with long queues of people sitting and standing in line for hours to see a general practitioner. These people, when they come into the doctor's office, are given numbers, as though they were standing in line at a bakery.

And, all too often, the doctor is so hurried and under such intensive pressure, that he has only two or three minutes in which to render his services to each individual.

This, gentlemen, is not something I read.

This is something I saw — again and again.

I saw medicine put on an assembly-line basis; I saw numbers supplanting names; I saw a process so coldly impersonal that I was reminded of a machine stamping out file cards.

I saw doctors almost in despair because they simply did not have the time to give individual patients the individual care they needed and deserved.

Let me give you a personal illustration. A man who served as a guide and chauffeur during my stay in England was eager for me to talk with his own doctor, who, in fact, had been his family physician for many years. This doctor said: "Yes, I will be glad to see Dr. Robins, but please urge him not to stay for more than ten minutes because of that long line of people in the reception room and in the street who are waiting their turn to have only one or two minutes with me today."

Based upon the facts made available to me, I found out that the effectiveness of the doctor in Britain has been weakened gravely — through no fault of his own.

When the family doctor finds one of his patients who is really sick and needs to go to the hospital, he has to refer the patient to a specialist — called a consultant, a consultant whom the family doctor cannot even help choose.

The relationship between the family doctor and his patient ceases at that point. Why? Because the family doctor cannot treat his own patient in the hospital.

A stranger takes over, a consultant whom the patient probably has never seen before; and the connection of the family doctor with the case ceases until the patient returns home.

As hard as this is for me to believe, I am told that it may be weeks before the family doctor even receives a report on the patient's condition.

I was told of some instances in which the patients had died and been buried before the family doctor even heard about it.

One doctor told me of a case involving a patient sent by a family doctor into a hospital for a gallstone operation. Three weeks later, the doctor happened to encounter a member of the patient's family. When the doctor inquired about the patient's condition, he was told that the patient had died two days after the operation.

Are these isolated cases? I can only tell you, gentlemen, that doctors of reputation and integrity told me of so many cases of this kind that I was astonished — and to be honest, badly jolted.

And what would happen if we tried a similar system in our own academy?

I can answer honestly only by translating this into terms of my own experience as a family doctor in Camden, Arkansas.

I can tell you that if I tried to go along with this in Camden, as doctors are forced to go along with it in Britain, the good people of my town would tar and feather me and ride me out of town on a rail.

Also, I can only tell you that in my opinion, they would be justified — and I would deserve it.

If you will permit me a digression, you perhaps will remember the story told by the late Alben Barkley about the man back in Kentucky who was tarred, feathered, and ridden out of town on a rail. At the city's outskirts, the man was released and asked whether he had anything to say.

"Well," the man said, "if it hadn't been for the honor of the ceremony, I would just as leave have walked."

I'm saying to you, gentlemen, if I may: please spare me the honor of the ceremony.

In this connection, let me add my conviction that the relationship between the doctor and patient in England clearly has deteriorated. A patient may come into the doctor's surgery (where several doctors may be working) and say "Let me see Jones. If he isn't here, I'll see Smith." They seldom say Dr. Jones or Dr. Smith.

Please don't misunderstand; this is not a matter of titles or formality. It seems to me to be an underlying, significant factor in the relationship between doctor and patient — more important to the patient than it is to the doctor because the patient's confidence in a doctor can often be the difference between life and death.

Mark me down as old-fashioned, if you will, but I happen to believe — and believe strongly — that the practice of medicine cannot be impersonal and still be effective. I happen to believe that people are different, with different needs and different problems, requiring different treatment. I happen to believe that doctors can't function effectively while in a strait-jacket.

What do the doctors in Britain think about all this?

Well, I'm not a one-man polling service, but I can tell you that the overwhelming majority of them with whom I talked were gravely concerned over what they considered declining standards of medical care.

I emphasize that these were private opinions, expressed privately.

At the outset in talking with doctors, I found some of them reluctant to express their basic convictions. When I assured them that I would not, under any circumstances, embarrass any individuals, they opened up and laid their beliefs on the line.

They felt the system underneath the surface was moving from crisis to crisis; they felt that the system was demoralizing to both patients and doctors; they felt that any service which appears to be provided "free" inevitably will be undervalued and over-used; they felt that doctors had been placed at the mercy of forces which had little interest, or sympathy for, the personal and confidential relationship which hitherto had existed between the doctor and his patient.

Most serious of all, they felt that the quality of health care under political domination had declined seriously.

These were the sort of things I was told:

"I spend about a third of my time filling out forms and papers," said a doctor practicing in one of London's slum areas.

"We can get our patients into hospitals for emergency treatment," said a health official, "but on routine surgery, our patients may have to wait anywhere from three months to three years."

"This hospital," a consultant told me, "had four lay administrative people when the government took over in 1948. Almost overnight, that staff increased to 17 people."

"Far too many of our able physicians are moving to other countries, where they can practice medicine more effectively," a health official said.

These remarks, gentlemen, were typical of the many I heard.

And just a few words about cost. Before the National Health Service was introduced, the government estimated the

annual cost would be less than 150 million pounds.

This was, however, a grave miscalculation. The actual expenditure in the first complete financial year, 1949 to 1950, was 436 million pounds.

Further, the costs continue to soar, with the estimate for 1958 in the neighborhood of 750 million pounds. This, you will note, is around five times the original prediction.

Even so, general and mental hospital construction ceased with the initiation of the National Health Service. Limited funds have been used for the renovation of existing structures, true enough. And some new hospital building is finally under way. But there is a waiting list for admissions to hospitals of perhaps half a million persons.

And so they wait, by the hundreds of thousands, for a chance to get in a hospital. They may wait two years to have their tonsils removed, two or three years for a gall bladder, a gastrectomy or other elective surgery.

In closing, gentlemen, let me say one thing:

Although I am not an authority on the British health program, it doesn't take an authority to state that the people of the United States would not take kindly to that long queue leading to their doctor's office; that three year wait for admission to a hospital; that assembly-line approach to treatment; that staggeringly expensive bureaucratic program tied up with red tape.

I am not saying that H. R. 4700 is, or seeks to be, a Made-in-USA version of the British health plan.

It isn't.

But H. R. 4700 is compulsory health insurance on a limited scale. And if it were made law, c o m p u l s o r y national health insurance — for every man, woman and child in this country — could soon come down the pike.

Should this happen — and I pray it doesn't — the high standard of health care that Americans expect, want and deserve, would begin to sag at the seams.

I don't think any member of Congress wants that to happen.

I think all of us want the best medical care for our people that skill, dedication and hard work can give us.

Hundreds of thousands of people — physicians, dentists, nurses, hospital personnel, clergymen, social workers, community leaders — are working to maintain this nation's proud claim to the best medical care of any country in the world.

Gentlemen, let them alone. Leave them to their voluntary approaches, and they will continue to do the job as they have always done it in the past.

Thank you.

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1. Innerfield, I.: Clinical report cited with permission
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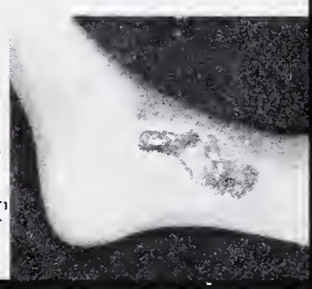




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back on his feet in a week after recurrent episode[1]





REFRACTORY CELLULITIS

normal routine resumed after 4 days of VARIDASE[1]

What's NEW

Traumatic Epididymitis*

JAMES W. HEADSTREAM, M.D.

The question of so-called "traumatic epididymitis" incurred by strain or trauma has increasing importance, especially in its relationship to compensation.

The literature contains some interesting articles pro and con, consisting of personal opinions that are no more scientific than testimonials for mineral water as a cure for kidney stones or arthritis.

The diagnosis of traumatic epididymitis is unfortunately sometimes a financial diagnosis. In some cases the only manner in which a physician may be sure of obtaining his fee is to accept the patient's statements and report the case as industrial, because the insurance company will pay while the patient probably will not.

The knowledge of a diagnosis of this sort will spread throughout the industrial area, and any future cases of epididymitis are expected by the patient to be the responsibility of the employer.

Dr. Wiley B. Wesson (*J. A. M. A.* 91:1857, 1928 and *J. A. M. A.* 155:1196, 1954 and *J. A. M. A.* 157:980, 1955) has written extensively on this subject and has boldly stated that "seminal vesiculitis and not contusions or strains is responsible for the epididymitis commonly diagnosed as traumatic orchitis."

In the majority of the usual cases of epididymitis one is able to demonstrate the etiologic basis to be an active infection of the urinary tract, prostate or seminal vesicle. The tenderness of a developing epididymal swelling is oftentimes first called to the patient's attention by a bump or the strain of sudden exertion. Any patient in industry is certainly subject to minor testicular trauma and may attribute the epididymitis to some specific cause such as straining while lifting a heavy object, which in reality may have been a well fed feminine companion.

Epididymitis has long been recognized as the most common of all intrascrotal inflammations, in which there is a bacterial invasion of the epididymis by direct extension along the vas deferens, by way of the lymphatic pathways or blood stream.

There are those that propose that sterile urine can find its way into the vas deferens and thus cause an inflammatory reaction in the epididymis. It is from this assumption that the proponents of strain epididymitis base their opinions. Rolnick (*S. G. & O.* 41:15, 1925) and later Groves and Engle (*J. Urol.* 64:601, 1950) made experimental studies on vasa isolated in the upper scrotum in animals. Although they used syringe pressure they were never able to force fluids into the globus major of the epididymis.

Dr. Wesson quotes studies of records from the athletic departments of various universities, and no reported cases of so-called traumatic orchitis or epididymitis have occurred. Certainly athletes are frequently struck in the scrotum, and epididymitis does not occur in this group.

Some authorities concede that traumatic epididymitis, although possible, is rare, but in spite of this, increasing claims for compensation arise.

Unequivocal evidence of traumatic epididymitis should probably include the following criteria: 1) a history of definite direct trauma, 2) visible evidence of scrotal trauma, 3) severe pain that is immediately disabling, and 4) involvement of both the testis and epididymis.

The relationship of straining to the appearance of an epididymitis poses a difficult problem in relation to compensation. It may be acknowledged that in rare situations sudden straining, tugging or strenuous lifting may aggravate a pre-existing asymptomatic condition causing infection to extend to the tail of the epididymis from inflammation present in the prostatic urethra or prostate.

A conscientious physician must consider the welfare of both the patient and the employer in making a decision of this sort. The degree of the strain or trauma should be considered a vital point in calculation of compensation.

In the rare case of unusual trauma and excessive strain, considering the courts' attitude on aggravation, we may assume that an epididymitis would not necessarily have occurred as a complication of the pre-existing infection without the superimposed trauma. In the majority of cases of mild strain or trauma, the benefit of doubt should be given to the employer.

"Compensationitis" is a very serious and protracted disease in which only a "greenback poultice" is curative.

James W. Headstream, M. D.
301 Waldon Building
Little Rock, Arkansas

A TEACHING SEMINAR
FROM THE
UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

Differential Diagnosis of Anemia*

S. William Ross, M.D.*

Anemia is defined as a decrease in concentration of the oxygen carrying substance of the blood. With the advent of national hemoglobin standards one can more uniformly define the lower limit of normal hemoglobin for males at 13.5 Gm.% and for females at 12.0 Gm.%. Approximately 1% of normal males and females may have hemoglobin values 0.3 Gm.% below these respective levels. The odds are great that individuals are anemic who have hemoglobin values less than these standard ones. In order to more readily understand the mechanism of this disorder, it is of value to review the facts and suppositions regarding erythrokinetics.

The source of the erythrocyte in the normal adult is the bone marrow, estimated to be 3.5-5.9% of the body weight, or about the size of the liver. Approximately 50% of the bone marrow is actively hematopoietic and about 12% is concerned with erythropoiesis. It takes about 4 days for the nucleated red cell to mature to the non-nucleated stage and anywhere from several hours to 3 or 4 days for the reticulocyte to mature. Erythrocytes are released into the circulation in either the mature or the reticulocyte stage, the proportion of each varying with poorly understood factors. Reticulocytes comprise 0.5-1.5% of the circulating erythrocytes. The value is more meaningful when transposed into absolute numbers with a normal range of 25-75,000 per cmm. The reticulocyte count gives a rough estimation of red cell production.

For normal production there must be an adequacy of erythropoietic tissue with the necessary amino-acid and vitamin (Vitamin B_{12}, Folic acid, Pyridoxine) nutrients as well as iron. Humoral regulatory factors are probably significant in maintaining a normal stimulus. The absence of any depressing agent is important for normal erythropoiesis. The normal bone marrow has a tremendous reserve and can increase production of red cells by seven or eight fold. Each day the normal individual produces 0.85% of his circulating red cells and hemoglobin mass. In a 70 Kg. man this amounts to approximately 0.01% of the body weight or 7 Gm. of hemoglobin per day.

After erythrocytes are released into the general circulation they have a normal life expectancy of 120 days. The senescent cells are destroyed in the spleen. The rate of destruction normally is equal to the rate of production. The individual is then in equilibrium and maintains his hemoglobin level. Normally the amount of hemoglobin destroyed each day is sufficient to produce a plasma free hemoglobin level up to 5 mg.%. Higher values indicate an increased rate of destruction.

The heme portion of the hemoglobin is converted to bilirubin in the reticuloendothelial system and in transport may reach a serum concentration of indirect reacting bilirubin of 0.8 mg.%. The bilirubin is excreted by the liver into the intestinal tract where it is converted by bacterial flora to urobilinogen some of which is reabsorbed and excreted by the kidney. Normally the 24 hour urine urobilinogen is less than 4.0 mg. (Negative in dilutions greater than 1:20). Since the protoporphyrin in heme amounts to 3.5% of the weight of hemoglobin and is essentially the same weight as urobilinogen, one would expect a 70 Kg. man to excrete about 240 mg. of urobilinogen in 24 hours. The normal value is 40 to 280 mg. A patient on broad spectrum antibiotics may have

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extremely low values because of diminution and change of intestinal flora. An elevated fecal urobilinogen is a fairly reliable index of the rate of hemoglobin *turnover particularly if the normal value is corrected for the patient's weight and hemoglobin level. An elevated urine urobilinogen has similar significance.*

$$\text{"Corrected" daily Fecal Urobilinogen} = \text{Measured 24 hr. Fecal urobilinogen} \times \frac{15\ \text{Gm.\%}}{\text{Patient's Hemoglobin in Gm.\%}} \times \frac{70\ \text{Kg.}}{\text{Patient's Weight in Kg.}}$$

IRON BALANCE

The iron released each day from hemoglobin breakdown is 0.33% of the weight of hemoglobin. From the 7 Gm. of hemoglobin destroyed each day in a 70 Kg. man 23 mg. of iron are released. Most of this is reutilized in new hemoglobin synthesis or is exchanged with the 1.0 to 1.5 Gm. of storage iron. About 1-1.5 mg. of iron are excreted each day in addition to 1 mg. of iron for each 2 ml. of blood lost if any bleeding is present. If the body stores of iron are normal, the serum iron in a well individual would be 50-180 μ %. Since the same amount of iron released from hemoglobin breakdown is required for hemoglobin synthesis, the normal male must absorb about 1 mg. of iron per day and the female 2 mg. of iron per day. In the male this is readily obtained from iron absorbed from food. The normal individual absorbs up to 10% of the food iron ingested. The daily intake of iron in the normal American diet is 10-20 mg. The normal female is usually on the brink of iron deficiency. Unless significant iron deficiency anemia occurs the mucosal barrier to iron absorption remains fairly fixed. Excess iron losses through menstrual, gastrointestinal or other bleeding are not readily made up. Pregnancy almost doubles the iron requirement.

DIAGNOSIS OF ANEMIA BASED ON BLOOD INDICES

Anemia may be measured and classified by a determination of the hematocrit, hemoglobin and erythrocyte count. Except for the calculation of the red cell indices, only the hemoglobin or the hematocrit is necessary to indicate the degree of anemia present. The hematocrit is the simplest and most accurate of these tests. Providing the blood is not made hypertonic or hypotonic by the anticoagulant, that the specimen is adequately mixed before filling the hematocrit tube, and that the centrifuge is capable of creating a centrifugal force of 2250 times gravity, the error in the procedure should not excede $\pm 1.0\%$. The hemoglobin determination with the cyanmethemoglobin or oxyhemoglobin method in a calibrated photoelectric colorimeter will vary with an error as high as $\pm 3.5\%$. The RBC count is most variable, with an error of at least $\pm 7.0\%$. The latter can be reduced significantly only by duplicate counts using two separate pipettes. For calculation of the red cell indices all of these tests must be performed on the same sample of blood. The indices may be determined as follows:

$$\text{Mean Corpuscular Volume (MCV)} = \frac{\text{Hmt. in \%}}{\text{RBC in millions}} \times 10$$

$$\text{Mean Corpuscular Hemoglobin (MCH)} = \frac{\text{Hb. in Gm.\%}}{\text{RBC in millions}} \times 10$$

$$\text{Mean Corpuscular Hemoglobin Concentration (MCHC)} = \frac{\text{MCH}}{\text{MCV}} = \frac{\text{Hb. in Gm.\%}}{\text{Hmt. in \%}} \times 100$$

Normal Values are:

$\text{MCV} = 89 \pm 7\ \mu^3$
$\text{MCH} = 27 - 32\ \mu\mu\ \text{Gm.}$
$\text{MCHC} = 32 - 38\%$

From the MCV the anemia may be classified as macrocytic, normocytic or microcytic. From the MCHC is may be classified as normochromic or hypochromic. Unfortunately the MCH is frequently used for the latter purpose. This has less direct bearing on the practical differentiation since it is influenced by both the concentra-

tion of hemoglobin and the size of the cell. In this discussion we shall always use the MCHC as the criterion for adequacy of hemoglobin in the cell. Because of the inherent errors in the determinations, the cell indices should always be verified by examination of a properly prepared stained blood smear. This may yield other important clues with reference to the diagnosis of the anemia.

From the indices one may separate out two groups of anemia which allow for specific therapy. These are the macrocytic normochromic anemias with megaloblastic bone marrow and the microcytic hypochromic anemias.

The causes of macrocytic normochromic anemia with megaloblastic bone marrow are listed in Table I. Since most of the diseases in this list are uncommon in themselves or are not usually associated with megaloblastic bone marrow and macrocytic anemia, the main differentiation to be made is among pernicious anemia, sprue or coeliac disease, carcinoma of the stomach, total gastrectomy, and blind loop syndrome. In simple terms this may be made as noted in Table II. After the above differentiation the patient with pernicious anemia can readily be culled from the others. The therapy here is specific, *i.e.*—Vitamin B_{12}.

TABLE I
Causes of Megaloblastic Anemia

1. Pernicious anemia.
2. Sprue or Coeliac disease in children.
3. Carcinoma of the stomach.
4. Total gastrectomy.
5. Intestinal strictures and anastamoses (blind loop).
6. Pregnancy (uncommon cause).
7. Diphyllabothrium latum (fish tape worm) infection. (Rare in Arkansas).
8. Myxedema (rare cause).
9. Liver disease (rare cause).
10. Achrestic anemia (uncommon entity).
11. Iatrogenic—6 M.P., Amethopterin, Daraprim. Anticonvulsants.
12. Dietary deficiency (starvation).

Microcytic hypochromic anemia almost always signifies the presence of iron deficiency. Rarer causes and the differentiation of microcytic hypochromic anemia are listed in Table III. The diagnosis of iron deficiency anemia in adults is essentially synonymous with chronic blood loss anemia. The diagnosis is incomplete unless the source of bleeding is identified. In women excessive menstrual bleeding which is subclinical is the most common cause. The iron demands of multiple pregnancies may also contribute to iron deficiency anemia. In males the gastrointestinal tract is the most common site of blood loss. The presence of peptic ulcer, malignancy, esophageal varices, hiatal hernia, a hemostatic defect, and hemorrhoids should be ruled out. Frequent epistaxis may produce iron deficiency. Hematuria usually does not. Oral iron therapy is specific and usually all that is required other than treatment of the underlying disease. Injectable iron may be indicated if oral iron can not be tolerated or absorbed because of gastrointestinal disease.

DIAGNOSIS OF ANEMIA ON THE BASIS OF MECHANISM

The remaining large group of anemias are more readily diagnosed on the basis of mechanism. The four basic causes are:

1. Decreased rate of red cell production
2. Increased rate of red cell destruction
3. Acute blood loss
4. Hemodilution.

Table IV lists the means of making this differentiation. The usual causes of anemia found with each mechanism are listed in Table V. The anemia associated with such diseases as infection, malignancy, the collagen diseases and renal disease are frequently due to a combination of decreased production and increased destruction of erythrocytes. In liver disease all four mechanisms may be operative.

THERAPEUTIC CLASSIFICATION OF THE HEMOLYTIC ANEMIAS

Once the diagnosis of hemolytic disease has been established, it is desirable to further subdivide these into those due to intrinsic defects in the erythrocyte and those due to extrinsic defects. Table VI lists tests useful in this differentiation. Hemolytic anemia associated with autoimmune phenomena may be improved by steroids, splenectomy or a combination of

TABLE II

Differentiation of Megaloblastic Anemias

	Free HCl in Gastric Analysis after Histamine	*Pregnancy*	*Neurological Disease*	*Fatty Bulky Frothy Stools*	*G. I. Series*	*Therapeutic Response Vit. B_{12}*	*Therapeutic Response to Folic Acid*	*Co^{60} Vit. B_{12} Uptake*	*Co^{60} Vit. B_{12} with Intrinsic Factor*
P.A.	0*	0	+	0	0	+	+	0	+
Sprue	+ Usually	0	0	+	0	±	+	0	0
Ca Stomach	+ Usually	0	0	0	+	+	+	0	+
Pregnancy	+ Usually	+	0	0	0	±	+	+	+
Total Gastrectomy	0	0	±	0	+	+	+	0	+
Blind Loop	+	0	±	0	+	+	+	0	0

*Presence of free HCl excludes the diagnosis of P.A. for practical purposes.

TABLE III

Differentiation of Hypochromic Microcytic Anemias

	History or Findings of Blood Loss	*Serum Iron*	*Bone marrow Iron*	*Paper Electrophoresis*	*Starch Electrophoresis*	*Response to Iron*
Iron Deficiency	Usually present	Low	Low	A Hb.	A_2 Normal	Excellent
Pyridoxine Deficiency	Absent	Normal	Normal	A Hb.	Normal	None
Thalassemia Major	Absent	Normal	Normal to Increased	AF Hb.	AF Hb.	None
Thalassemia Minor	Absent	Normal	Normal to Increased	A Hb.	A_2 Hb. Increased	None
Hemoglobinopathy (Microdepranocytic) Hb. S-C	Absent	Normal	Normal to Increased	Characteristic	Characteristic	None

TABLE IV

DIFFERENTIATION OF ANEMIA ON BASIS OF MECHANISM

	Decreased RBC Production	*Increased RBC Destruction*	*Acute Blood Loss*	*Hemo-dilution*
Trephine Bone marrow	Erythroid hypoplasia or Maturation arrest	Erythroid hyperplasia	Erythroid hyperplasia	Normal
Absolute Reticulocytes	↓	↑	↑	→
Rate of Appearance of Fe^{59} in Hb.	↓	↑	↑	→
Plasma Free Hb.	→	↑	→	→
Indirect Bilirubin	→	↑	→	→
Fecal & Urine Urobilinogen	→	↑	→	→
Cr^{51} RBC Survival*	→	↓	↓	→
History or findings of Blood Loss	− + with Iron deficiency	−	+	−
Edema or Ascites	±	±	±	++
I^{131} Albumin or Evans blue dye determination of plasma volume	→	→	↓	↑

*Or drop in hemoglobin level greater than 1 Gm. every 5 days for 3 consective periods.

TABLE V

CLASSIFICATION OF ANEMIA BY MECHANISM

I. Decreased Erythrocyte Production
   - A. Iron deficiency.
   - B. Nutrient (hematopoietic factor deficiency—Vit. B_{12}, etc.).
   - C. Bone marrow hypoplasia due to injury:
     1. Chemical
     2. Irradiation.
   - D. Associated with other diseases:
     1. Space occupying lesions
     2. Infection
     3. Renal disease
     4. Liver disease
     5. Collagen diseases
     6. Myxedema
     7. Panhypopituitarism
   - E. Unknown cause
     1. Familial
     2. Idiopathic
     3. Associated with thymoma

II. Increased Erythrocyte Destruction
   - A. Intrinsic causes
     1. Hereditary spherocytosis
     2. Hereditary non-spherocytic anemia
     3. Hemoglobinopathies
     4. Thalassemia
     5. Paroxysmal nocturnal hemoglobinuria
     6. Deficiency of Glucose 6 Phosphate Dehydrogenase
     7. March hemoglobinuria
     8. Pernicious anemia.
   - B. Extrinsic causes
     1. Acquired autoimmune hemolytic anemia
     2. Infection (Malaria, primary atypical pneumonia virus, etc.)
     3. Due to chemicals
     4. Transfusion reactions.

III. Acute Blood Loss
   1. Local disease
   2. Hemostatic defect.

IV. Hemodilution
   1. Cardiac failure
   2. Nephrotic syndrome
   3. Cirrhosis
   4. Hypoproteinemia.

the two. Patients with hereditary spherocytosis are helped by splenectomy.

USE OF BLOOD TRANSFUSIONS

Blood transfusions are used as supportive therapy for almost any type of anemia except those due to hemodilution. They should be used with discretion. The reaction rate is about 3%, with a mortality produced by one in every 3000 transfusions. Homologous serum jaundice occurs about once in every 500 transfusions. Except in the treatment of blood loss or preparation for surgery, transfusions are not necessary if the hemoglobin level is above 7.5 Gm.%. Exceptions to this rule are patients with concurrent angina, cardiac failure, or evidence of cerebral hypoxia.

CONCLUSION

An understanding of erythrokinetics is essential to the proper diagnosis and treatment of anemia.

TABLE VI

Differentiation of Intrinsic and Extrinsic Erythrocytic Defects

GENERAL

	Intrinsic	*Extrinsic*
1. Family history	Frequently positive	Negative
2. Evidence of underlying disease	None	Frequently present
3. Cr^{51} RBC survival of donor cells	Normal	Decreased
4. Cr^{51} RBC survival of patient's cells	Decreased	Decreased

SPECIFIC

Intrinsic

1. Incubated osmotic fragility test.
2. Spherocytes in hanging drop or on blood smear.
3. Ovalocytes on smear.
4. Sickling test.
5. Paper electrophoresis of Hb.
6. Starch block electrophoresis of Hb.
7. Acetylphenyldydrazine test for Heinz bodies.
8. Test for glucose 6 phosphate dehydrogenase.
9. Ham test.

Extrinsic

1. Incubated osmotic fragility test.
2. Spherocytes in hanging drop or on blood smear.
3. Coombs test.
4. Trypsin treated RBC.
5. Tannin treated RBC.
6. Donath-Landsteiner test.
7. Cold agglutinin titer.
8. Strep M.G. Agglutinin Titer.
9. Macroglobulin determination.
10. Cryoglobulin determination.
11. L. E. Test.
12. Blood cultures for bacteria.
13. Blood smear for protozoa.
14. Acute and convalescent sera for virus antibodies.
15. Biopsy of diseased tissue.
16. History, physical and all other procedures that identify an underlying disease.

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What Is Your Diagnosis?



FOR ANSWER SEE PAGE 254

Arkansas Public Health at a Glance

ACCIDENTS AS A CAUSE OF DEATH IN ARKANSAS

For several years accidents have ranked as the fourth leading cause of death in Arkansas, as well as in the rest of the nation. Since the infectious diseases have been brought more nearly under control, accidents have climbed nearer the top of the list of major health problems.

Table Number 1 below shows the leading causes of death in Arkansas in 1958. Other leading causes not shown in the table include: diseases of arteries, 387 deaths; kidney diseases, 360; infectious diseases, 339 (other than pneumonia-influenza, but including tuberculosis, 193); and diabetes, 223.

Table Number 2 below shows the leading causes of accidental deaths. As might be expected, deaths resulting from motor vehicle accidents far out-ranked the next leading cause, accounting for over one third of all accidental deaths. Fire took 188 lives in 1958, the largest number in a one-year period in over ten years.

MAIN CAUSES OF DEATH IN ARKANSAS - 1958

CAUSE	NUMBER	PER CENT OF TOTAL
HEART	6,208	36.5
CANCER	2,388	14.0
VASCULAR C.N.S.	2,256	13.3
ACCIDENTS	1,174	6.9
PREMATURITY, BIRTH DEFECTS, ETC.	721	4.2
PNEUMONIA, ETC.	705	4.2
ALL OTHERS	3,554	20.9
TOTAL	17,006	

ACCIDENTAL DEATHS IN ARKANSAS - 1958

CAUSE	NUMBER	PER CT. OF TOTAL
MOTOR VEHICLES	450	38.3
FIRE	188	16.0
FALLS	130	11.0
DROWNING	103	8.8
SUFFOCATION	60	5.1
FIREARMS	45	3.8
MACHINERY	36	3.1
POISONS	31	2.6
OTHERS	131	11.2
TOTAL	1,174	

Editorial

Medicine in Yugoslavia

ALFRED KAHN, JR., M. D.

In this small country with an unfortunate geographic position a form of communism exists which is contrary to our American way of life and to our ideals. This state differs in some respects from what we consider the prototype or pattern of communistic countries as exemplified by Russia, for example, American newspapers and other foreign papers can be found in public news-stands; there does not seem to be a fear of talking to foreigners, and there is no visible evidence of an attempt to shield the country or its peoples from foreigners.

Although the writer did not perform a comprehensive survey of Medicine in Yugoslavia, through the kind efforts of the Secretary for Health of Federal Executive Council he was able to learn a great deal about medical care.

This country aptly demonstrates that there can be no national barriers to the importation and exportation of ideas. The Yugoslav physicians are well acquainted with the world medical literature and most understand a language other than Yugoslavian.

There are six medical faculties in the country, and since World War II, the number of physicians has increased from around 4,000 to almost 12,000. This is obviously a tremendous effort, and probably weight was given to the serious need for physicians rather than to provide the optimal education for the individual. Up to 600 were graduated per faculty per year. The medical curriculum is somewhat different than in our country, the student going to a medical faculty without a preliminary arts education. The course has varied in length from 10 to 12 semesters in an effort to try and arrive at a satisfactory training program. In the last two years the student has clinical work.

After graduation, the physician must take the equivalent of a rotating internship under the auspices of a medical faculty. He is then required to go into general practice. Medical problems know no national barriers either. Just as in America, there is a strong desire to practice in the cities, and there is a strong demand for specialty training.

The general physician may practice in the city or a rural community, and he must practice about 2½ years before he can take further training as a specialist should he so desire. The general physician sees patients in the home or for the equivalent of an office type visit. The general physician does not have a hospital practice and does not do surgery. Since he is very busy, time probably would not permit a hospital practice; much of the country is mountainous and travel is time consuming, although the roads are in fairly good repair.

Should the physician desire specialty training, he may apply after 2½ years of general practice. The training can be obtained at certain hospitals other than the hospital of a teaching faculty but the last 12-24 months of the 4-5 year training program must be taken in a teaching hospital. After the specialty training, the physician must show evidence of his professional competence by a stringent examination to be recognized as the equivalent of our board training.

There is *NO* private practice; the last vestiges disappeared this year. The patient may choose his own physician or specialist within geographic limitations. The cases are handled by a system of sorting. If the case can be handled at home or in a clinic, this is done; if not, he is referred to the nearest hospital; ordinarily, if the case is complicated or is a rare specialty, the patient is referred to a center specializing in his type of disorder.

There is a good deal of decentralization in the organization of the Yugoslavian medicine. Local professional groups are given a good deal of autonomy in choosing physician applicants and in setting salaries. The actual source of

money is determined on at least 3 criteria: — length of service, professional competency, and certain special considerations as for example, additional income might be given for practice in an undesirable location, etc. The physician receives no income from his patients. The physician's salary comes from a tax on both the patient, like our social security tax, and by certain taxes on industry.

The medical facilities vary greatly in their physical plants. Some are very modern and some are quite outdated by our standards. Nevertheless, they are clean and well tended. This is a poor country and simply cannot afford universally new equipment and buildings.

It was a real pleasure to talk to the physicians. They were uniformly courteous and frank. They were well informed on medical and surgical technique. There are no barriers to the free passage of medical information in or out of the country. An interview always included refreshments as coffee or Slivovitz, a plum brandy, and much genuine cordiality.

A visiting physician could not help coming away with a genuine admiration and warm feeling for these Yugoslavian doctors as individuals even though he strongly deplored the system of socialized medicine in their country.

Medicine in the News

Dogs Catch Mumps From Children

CHICAGO — When Johnny has the mumps, Fido better stay away. He may catch them, too.

Two cases of mumps in dogs were reported in the current (September) Journal of Diseases of Children, an American Medical Association publication.

The transmission of mumps in animals other than man or monkeys has previously been considered to be rather improbable and little has been reported on its appearance in other animals, the report said.

The dogs, pets of two different families, were a six-month-old dachshund and a three-month-old Boston terrier. They developed mumps after being in contact with family members who had the disease. The dogs were allowed upon the beds of the patients during their illness and convalescence.

* * *

Approximately 1,015 surgeons were inducted as new Fellows of the American College of Surgeons in cap-and-gown ceremonies, held in Atlantic City, New Jersey, closing the annual five-day Clinical Congress of the world's largest organization of surgeons.

Those receiving this distinction from the State of Arkansas are: Lawrence M. Jackson, Jr., Lt. Col., of Pine Bluff, Paul H. Millar, Jr., of Stuttgart, and James W. Harrison and Charles P. Yarbrough of Texarkana.

International College of Surgeons Bestows Honorary Fellowships On Nun, Layman, and 11 Surgeons of World

Thirteen honorary fellowships in the International College of Surgeons were conferred at convocation ceremonies which concluded the 24th annual Congress of the College's North American Federation in Chicago, September 13-17.

In addition, about 1,500 surgeons from 50 countries were made fellows, associate members, or junior members, bringing the membership to a new high of about 13,000.

A woman for the first time became the recipient of an honorary fellowship. It was bestowed upon Mother Anna Maria Dengel, M.D., of Rome, an American citizen and founder and superior general of the Medical Mission Sisters, who provide medical service to people in under-developed countries.

A layman for the second time in International College of Surgeons history, was made an honorary fellow. The honor went to Senator Lister Hill of Alabama, sponsor of the International Medical Research Bill and supporter of medicine in its efforts to maintain a high level of medical care. The only other layman to have been made an honorary fellow is Francis Cardinal Spellman of New York.

Health Insurance

Nine out of every ten persons who have health insurance coverage for hospital care also have protection against the cost of surgery, the Health Insurance Institute reported today.

In addition, six out of every ten persons with hospital expense insurance now have regular medical expense insurance, which helps pay for doctor visits for non-surgical care.

In the past decade there has been a sharp rise in the proportion of persons who have improved their health insurance protection by covering themselves against more than one type of medical expense, the Institute stated.

In 1948, some 61 million persons had hospital expense insurance. Of this number, 34 million, or 55.8 per cent, also had surgical expense insurance and 13 million, or 21.1 per cent had regular medical expense insurance.

Ten years later, at the end of 1958, the number of Americans with hospital expense insurance had more than doubled to reach 123 million. Of this sum, 111 million, or 90.6 per cent, also were covered against the costs of surgery, and 75 million, or 61.3 per cent, were protected against regular medical expenses.

ANNOUNCEMENTS

The Mid-South Postgraduate Medical Assembly will hold its 71st annual meeting on February 9-10-11-12, 1960, at the Peabody Hotel, Memphis, Tennessee.

An excellent program has been arranged with outstanding guest speakers; an interesting C.P.C. and luncheon discussions. Such men as Samuel F. Marshall, M. D. of Lahey Clinic, Richard T. Shackelford, M. D. of Johns Hopkins, Earle B. Kay, M. D. of Cleveland, Herbert Conway, M. D., who is currently in Russia, and will speak on "Medicine as Practiced in Russia", William F. Miller, M. D. of Dallas, John E. Heslin, M. D. of Albany, N. Y., Frank E. Stinchfield, M. D. well known Orthopedist, J. Robert Willson, M. D. of Philadelphia, Pennsylvania, and others will be on the program.

Activities and entertainment have been provided for the wives, and it is hoped that your wife will attend the 1960 meeting with you.

A brochure will be forwarded to you in the near future. You may register in advance with the card attached to the brochure, or at the meeting when you arrive.

* * *

Surgeons and related medical personnel are invited to attend the three day Sectional Meeting of the American College of Surgeons in Louisville, Kentucky, January 21 through 23, 1960. Headquarters will be The Brown Hotel. This is the first College meeting in Louisville since 1950.

* * *

The Tuberculosis Association of Greater New Orleans will sponsor a one-and-a-half day conference on December 10-11, 1959, at which time Mycobacterial and Mycotic Diseases with Special Reference To Childhood will be discussed by a number of Medical Authorities.

Contributors to the American Medical Education Foundation during the month of August 1959:

Woman's Auxiliary to the Arkansas Medical Society	$ 100.00
Dr. John C. Baber, Jr., Little Rock	13.50
Woman's Auxiliary to the Benton County Medical Society	5.00
Woman's Auxiliary to the Boone County Medical Society	10.00
Dr. F. Bridger, Jonesboro	10.00
Dr. J. W. Burnett, Texarkana	28.00
Dr. J. H. Chestnutt, Hot Springs	5.00
Dr. W. W. Christeson, Little Rock	33.75
Woman's Auxiliary to the Clark County Medical Society	80.00
Woman's Auxiliary to the Columbia County Medical Society	10.00
Woman's Auxiliary to the Craighead-Poinsett County Medical Society	5.00
Dr. Hal Dildy, Little Rock	35.75
Dr. A. H. Doren, Smackover	60.00
Dr. K. R. Duzan, El Dorado	5.00
Dr. W. M. Douglas, Jonesboro	5.00
Dr. M. Fincher, El Dorado	2.50
Woman's Auxiliary to the Garland County Medical Society	30.00

Woman's Auxiliary to the Greene-Clay County Medical Society	10.00
Dr. M. C. Hawkins, Jr., Searcy	2.50
Woman's Auxiliary to the Hempstead County Medical Society	4.00
Dr. M. K. Henry, Little Rock	2.50
Dr. F. G. Holt, Hope	7.00
Woman's Auxiliary to the Howard-Pike County Medical Society	5.00
Woman's Auxiliary to the Jefferson County Medical Society	20.00
Dr. Y. Johnson, Little Rock	25.00
Dr. E. Jones, Little Rock	3.00
Dr. J. W. Jones, Texarkana	5.00
Dr. S. McCaughey, Paragould	15.75
Dr. M. J. Mobley, Russellville	5.00
Dr. Berry L. Moore, Jr., El Dorado	5.00
Dr. J. A. Norton, Little Rock	10.00
Dr. Gordon Oates, Little Rock	5.00
Dr. Frank Padberg, Little Rock	3.35
Woman's Auxiliary to the Phillips County Medical Society	10.00
Woman's Auxiliary to the Pulaski County Medical Society	742.23
Dr. W. S. Riley, El Dorado	87.14
Dr. David Russell, Jasper	10.00
Dr. J. W. Russells, Jr., Smackover	5.00
Woman's Auxiliary to the Sebastian County Medical Society	50.00
Dr. K. N. Selakovich, Little Rock	13.50
Woman's Auxiliary to the Sevier-Poik County Medical Society	12.00
Dr. P. T. Stroud, Jonesboro	10.00
Woman's Auxiliary to the Union County Medical Society	18.73
Dr. J. R. Walt, Little Rock	22.50
Woman's Auxiliary to the Washington County Medical Society	12.00
Dr. Robert Watson, Little Rock	17.00
Dr. G. D. Wisdom, Jonesboro	5.00
Total	$1,581.60

Obituary

Dr. Marion S. Craig, 74-year-old retired physician, died August 21, 1959, at his home in Batesville. Dr. Craig attended Arkansas Normal College at Jamestown, the University of Arkansas and graduated from Vanderbilt School of Medicine. He began his practice of medicine at Black Rock, Arkansas, and later came to Batesville where he practiced for 45 years. He was a charter member of the Batesville Kiwanis Club, member of the American Medical Society, the Arkansas State Medical Association, and the Independence County Medical Society.

Survivors include his wife, Mrs. Ruth Craig, two sons, Dr. Marion Craig of Little Rock, and Dr. R. A. Craig of Batesville, three Stepdaughters, Mrs. J. M. Sanders, Dallas, Texas, Mrs. George Terry, Baton Rouge, La., and Mrs. Dan Futrell, Nashville, Arkansas, two sisters, Mrs. Floy Shelpman, Salado and Mrs. Nobis Milliken, Sabinal, Texas; one brother Dr. J. R. Craig, Ada, Oklahoma and thirteen grandchildren.

Personals and News Items

Dr. Carroll S. Shukers, a native of Little Rock, joined the Community Health Clinic at Perryville as physician and medical director. For the past year, he has operated a clinic at Cartage.

Announcement was made by Henry Keith Jr., president of Southern Life and Reinsurance Company, of the election of Dr. John M. Samuel as medical director of the Company.

Dr. Gilbert Evans has taken over the office and practice of Dr. Bob Slaughter in Batesville. Dr. Slaughter has gone to St. Louis for six months special training in surgery.

Dr. R. B. Robins left for Montreal, Canada, to attend the World Medical Association meeting as representative of the American Medical Association of which he is a member of the Board of Trustees. There will be doctors at this meeting from 50 countries of the world.

A ten-bed hospital was opened in September in Monette. It will be known as the Island Hospital, and Dr. Thomas C. Flaningan, who has been practicing in Monette since last spring, will operate the hospital.

Dr. Marvin L. Murphy moved to Siloam Springs to join the staff of Gunter, Huskins and Puckett at the Siloam Springs Medical Center.

Two physicians, Dr. Henry Grochau and Dr. Avron Slutsky, are now occupying their new Marked Tree Clinic. Both doctors are graduates of the University of Tennessee School of Medicine and both interned at the Baptist Hospital in Memphis.

Dr. Charles D. Avery is returning to general practice in Prescott, after completing four years of military service. He will open his clinic at 409 East 6th St.

Members and guests of the Heber Springs Rotary Club heard an inspiring talk by Dr. Lowry H. McDaniel, Tyronza physician. He is the originator of the "Festival of Faith" held every second year in Tyronza which attracts leaders in medicine and religion throughout the world.

After a month's tour of European countries with Arkansas Travelers, Dr. Stanly Gutowski of Perryville, returned home. He was a member of a delegation of 14 who left New York City on July 15. One of the highlights of his tour was attending the American Exhibition at Moscow which was opened by Vice President Nixon.

Open House was held Sunday, September 13, at Spring River Memorial Clinic from 2:00 until 5:00 in the afternoon.

Under the direction of Dr. Lloyd Gregory, the clinic has been remodeled and redecorated. A well equipped laboratory has been added as well as a new X-Ray machine.

Purchase of land upon which will be built a modern medical clinic at the entrance to the Crawford County Memorial Hospital in Van Buren was made by Dr. M. C. Edds and Dr. A. E. Thorne.

The Hermitage Lion's Club has embarked on a project to bring a resident active physician and clinic to Hermitage and the lower part of the County. The organization hopes to build a small clinic to help attract a young doctor to move to Hermitage and set up his practice.

Dr. Betty Jane McClellan of North Little Rock, Arkansas, is amazing medical examiners and police officers in Boston with her legal medical detective work by performing autopsy examinations. She is working with Harvard University's famed crime laboratory in connection with suspicious deaths.

Proceedings of Societies

The Boone County Medical Society was called to order at 7:00 p.m., September 8, 1959, by the President, Dr. G. Allen Robinson for the purpose of discussion of the Quota System of the admission of patients to the University Hospital.

After some discussion by the members present it was moved by Dr. Jean C. Gladden and seconded by Dr. A. R. Hammon that the Boone County Medical Society go on record as opposing the county quota system for patients admitted to the University Medical Center Hospital, and also opposing the county quota system for medical students admitted to the Medical School. The motion carried.

The name of Dr. Rhys A. Williams was proposed for membership in the Boone County Medical Society, and on a motion which was seconded, the Society voted favorably to accept Dr. Williams as a member of the Society.

The semi-annual meeting of the house of delegates of the Arkansas Medical Assistants Society was held August 9th at Hotel Lafayette. A resolution urging all persons who have not taken polio shots start the innoculations series immediately.

The Pulaski County Medical Society met Tuesday, September 1, in the Medical Center. Dr. John M. Hundley gave a report on his recent trip to Russia.

New Members . . .

Samuel D. Watson is a new member of the Washington County Medical Society. He is a native of Hoxie, Arkansas, and was graduated from the St. Louis College of Pharmacy in 1949. He received his M.D. degree from the Arkansas University School of Medicine in 1957. Dr. Watson is a general practitioner with his office at Mt. Ida, Arkansas.

Dr. James Laurence Jones has been accepted for membership in the Franklin County Medical Society. A native of Little Rock, Arkansas, Dr. Jones received his preliminary education at the University of Arkansas at Fayetteville, his M.D. degree was received from the University of Arkansas School of Medicine in 1955. From 1957 until 1959, he served in the U. S. Navy. Dr. Jones is a general practitioner with his office in the Counts building in Ozark.

Dr. Omer E. Bradsher has been accepted for membership in the Greene-Clay County Medical Society. A native of Little Rock, Arkansas, Dr. Bradsher received his preliminary education at the Hendrix College and was graduated from the University of Arkansas School of Medicine in 1958. His internship at the Kansas City General No. 1 was completed in June 1959. Dr. Bradsher is a general practitioner with his office at Marmaduke, Arkansas.

Woman's Auxiliary

The Woman's Auxiliary to the Arkansas Medical Society held its annual Fall Conference Tuesday, September 1, 1959, at the Woman's City Club in Little Rock.

The film, TIME AND TWO WOMEN, was presented by the Arkansas Division of the American Cancer Society. Dr. Joe H. Hardin of the Cancer Society Board, conducted a question and answer period.

Charles Johnson from the A.M.A. Chicago office, presented a "New Challenge for the Auxiliary" and urged the auxiliary to work with their doctor husbands in local, county, and state projects.

Mrs. Austin Doren presented the first priority of the auxiliary for the year, the American Medical Education Foundation. This presentation was followed by the second priority, "Recruitment for Health Careers."

A panel, "Your Auxiliary and Community Service," was moderated by state chairman Mrs. William H. Breit. The closing panel of the morning session was

entitled "Safety," moderated by Mrs. Frank Adams, state chairman.

The morning activities were closed with a luncheon. Guests were Dr. James Kolb, president of the Arkansas Medical Society; and Paul C. Schaefer, executive secretary of the Arkansas Medical Society. Mrs. Choate and Mrs. Erner Jones were hostesses for the Conference. A meeting of the state board followed with Mrs. Paul Gray, state president, presiding.

Mrs. Paul Gray, of Batesville, President of the Woman's Auxiliary to the Arkansas Medical Society, and Mrs. C. C. Long, of Ozark, President-elect, visited county auxiliaries in Western Arkansas during September. They attended noon luncheons at Harrison, a combined meeting of the Franklin and Johnson County Auxiliaries at Clarksville, and at Washington County.

LETTER TO EDITOR

September 25, 1959

Dear Doctor:

I am sure you have heard that legislation has passed the Congress to authorize the transfer of the Army-Navy Hospital to the State of Arkansas for operation as a Vocational Rehabilitation Center.

The passage of the transfer bill was the culmination of many years of effort on the part of the Arkansas Congressional delegation to find a suitable use for this fine facility. As you know, the Army has for several years tried to close the hospital and it has been kept in operation only because of a specific directive placed each year in the Department of Defense Appropriation Bill. The Army's operation of the hospital was extremely uneconomical from the taxpayers' standpoint, and our continued efforts to influence the Army to increase the patient load met with little success. No other Government agency could be interested in making use of the facility. In late 1958 it was proposed by a committee of specialists in the vocational rehabilitation field that the property be donated to Arkansas for conversion to and operation as a rehabilitation center.

I am sure you are aware of the need for a comprehensive rehabilitation center in our section of the nation. The center will be designed to serve patients from all nearby States and it is expected that it can be operated on a self-sustaining basis after a transition period. During the transition period it is hoped that Federal funds can be made available to help meet operation costs. An appropriation of $200,000 has already been made by the Federal Government for this purpose this year. The project will be operated by the Arkansas Vocational Rehabilitation Service.

I am, of course, pleased that the project is well on the way to success and in view of your interest in rehabilitation work, I thought you would want to have the above information concerning the project.

With kind regards, I am

Sincerely yours,
J. W. Fulbright

JWF: pns

Answer to What Is Your Diagnosis

This 54-year-old white female presented with a history of weakness, dysuria and pyuria.

Blood chemistries were as follows: Serum calcium—13.5 mgm%, phosphorus —3.7 mgm%, alkaline phosphatase—100 KAU.

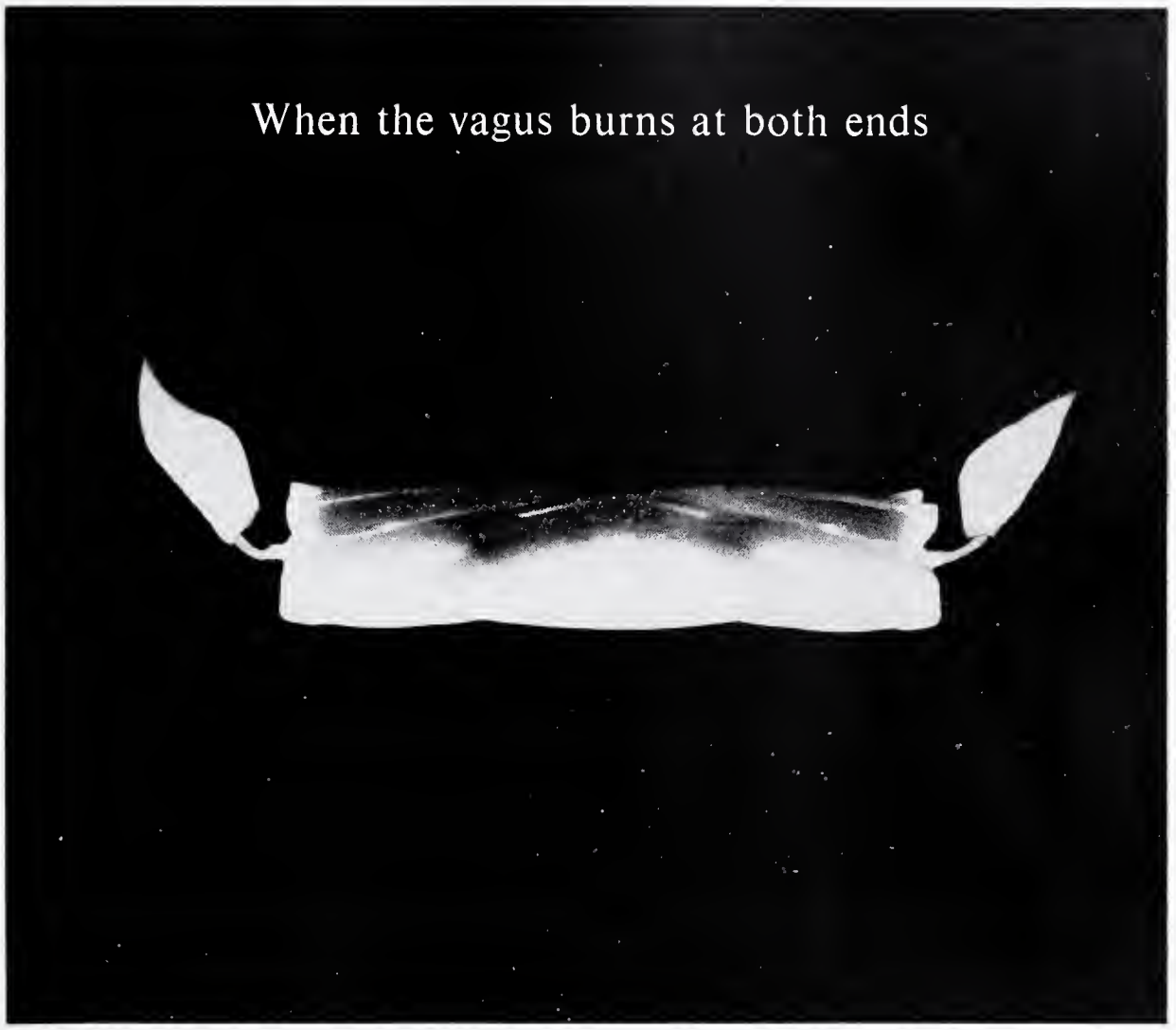
A parathyroid adenoma was removed and the blood chemistries subsequently returned to normal.

A KUB film reveals many small flecks of calcification throughout the substance of both kidneys.

Book Reviews

HYPERTENSION, Edited by John H. Moyer, M.D., Professor and Chairman of The Department of Medicine, Hahnemann Medical College and Hospital. PP 790, illustrated, 1959, W. B. Saunders Company, Philadelphia and London.

This textbook is a symposium by outstanding author on hypertension. It includes panel discussions as well as conventionally written and illustrated chapters. It is extremely easy to read and represents a symposium given at Hahnemann



Pro-Banthine® with Dartal® moderates both mood and gastrointestinal spasm

The slow simmer of anxiety frequently causes kindred gastrointestinal overactivity. The spasticity and the accompanying distress of excess acid lead to loss of efficiency. Patients subject to such psychoenteric upsets require therapy to calm both ends of the vagus.

Pro-Banthine with Dartal contains two agents required for such dual therapy: Pro-Banthine to control and curtail the flare-ups of spasm, excess acidity and exeess motility, and Dartal to smother simmering anxiety and tension.

Pro-Banthine with Dartal contains 15 mg. of Pro-Banthine (brand of propantheline bromide) and 5 mg. of Dartal (brand of thiopropazate dihydrochloride) in each tablet.

Dosage: One tablet three times a day.

G. D. Searle & Co., Chicago 80, Illinois.
Research in the Service of Medicine.

Medical College in December, 1958. It is up-to-date and authoritative. It will be of considerable interest to the internist. It is highly recommended as a readable book on hypertension but should not be considered in the same light as a textbook article on this topic.—AKJ

PREVENTIVE MEDICINE. Principles of Prevention in the Occurrence and Progression of Disease. Edited by Herman E. Hilleboe, M.D.. Commissioner of Health, State of New York, Department of Health, Albany, and Granville W. Larimore, M.D., Deputy Commissioner of Health, State of New York, Department of Health, Albany. PP 731, illustrated, 1959. W. B. Saunders Company, Philadelphia and London.

This textbook is a symposium by a number of contributing authors. It has an interesting format divided into three parts consisting of prevention of occurrence, prevention of progression, and supporting services for preventive medicine. Of most interest to the general physician is Part One which details discussions concerning milk-borne illness, insect vectors, air pollution, ionizing radiation, infectious disease and others. There is an interesting chapter on medical defense on atomic attacks. Another exceptionally interesting part of the book concerns accident hazards. Considering our high death rate due to accidents, this becomes an extremely important feature of preventive medicine. Actually, there is pointed out that accidents are the leading cause of death between the age of 1 to 36. The sections on prevention of progression and supportive services of preventive medicine are of less interest to the practicing physician. This book is well written and is recommended as a textbook of preventive medicine.—AKJ

THAT THE PATIENT MAY KNOW. Harry F. Dowling, M.D., Sc.D., Professor of Medicine, University of Illinois and and Tom Jones, B.F.A., Professor of Medical Illustration, Emeritus, University of Illinois. PP 139, illustrated, 1959, W. B. Saunders Company, Philadelphia and London.

This book provides the physician with a series of illustrations which may be used in explaining disease states to the patient. The illustrations are both in black and white and, in some instances, color is added. This could be an important adjunct to the physician if properly used. Patients are naturally curious to know their anatomy and disease states. These illustrative diagrams can be used to great advantage in explaining facts to the patient.

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Symposium in Honor of Dr. Paul L. Day

Dr. Paul L. Day has been one of Arkansas' most distinguished teachers and research scientists. While in the University of Arkansas School of Medicine many honors came his way. On May 13, 1959, the Central Arkansas Section of the American Chemical Society honored Dr. Day. At this meeting, a series of papers were prepared by his associates. They are published in this issue of the Journal.

Central Arkansas Section
American Chemical Society

Honors

Dr. Paul L. Day

First Chairman of this ACS Section, 1951-1952

for

Thirty-one years of inspired teaching with an emphasis on excellence in the pursuit of truth,

Fundamental contributions and new insights in nutrition and biochemistry,

Leadership in the creation and guidance of this ACS Section.

Wisdom and friendliness has joined originality and energy in your scientific and academic endeavors.

We send warm wishes to you and your wife in your new area of statesmanship in science.

L. A. ADAMS
Chairman

CHARLES NONY
Secretary

Little Rock, Arkansas
May 13, 1959

Paul L. Day — Persistent Investigator

CARROLL F. SHUKERS, M.D.*

Tonight we honor Dr. Paul L. Day, the first chairman of the Central Arkansas Section, American Chemical Society (1951-1952). We express our appreciation to him:

(1) for persistence in organizing this section,
(2) as a stimulating teacher of chemistry during 31 years of service as Professor and Head of the Department of Biochemistry in this Medical School,
(3) for his initiative and vision in organizing a graduate program in basic sciences in the Medical School, and service as an Assistant Dean of the Graduate School,
(4) We honor Paul L. Day for persistence in research at a time when research was unpopular.

These investigations are itemized in an 8-page bibliography. They brought him many honors and awards, including the presidency of the American Institute of Nutrition in 1952-1953, the Mead Johnson Vitamin B Complex award in 1947, the Midwest Award in Chemistry in 1948, the Southwest Regional Award in Chemistry in 1952.

Three recent research studies will be described in the scientific papers of this evening.

It is my pleasant task to set the stage for the achievements of Dr. Day, which are even more impressive when noted against the background of the Medical School in the 1920's and '30's. To do this, I will briefly sketch the history of the Medical School, indicate the nature of Dr. Day's early research and comment on the man.

The University of Arkansas School of Medicine began as a joint stock corporation in 1879 and acquired a nominal connection with the Arkansas Industrial University on the condition that "The State University would not be responsible for the financial support of this department." Thirty-three years later it lost its proprietary character and began to receive token minimal support from the State, but it was not until 1945 during the Administration of Senator Fulbright that union with the University on budget matters became complete. Prior to that time the Medical School lobby competed with the University for legislative appropriations.

We are so accustomed to the plush elegance of this building and similar modern institutions that it is difficult to picture the Medical School as Dr. Day saw it in 1927.

The present State Capitol was completed in 1912 and the State offices moved out of the old capitol on Markham Street adjacent to the Marion Hotel. It is said that as the State office furniture moved out the door of a room, Dr. Morgan Smith, the Dean at that time, had a truck backed up to a window and was passing Medical School equipment into the vacated space. The old capitol was 80 years old. The space was poorly adaptable for teaching, the laboratories and single lecture room were inadequate. There were eight full-time faculty members. Instruction was largely didactic; equipment was lacking for even simple laboratory experiments in clinical chemistry. All salaries and equipment for the entire school had to be paid out of an annual budget of $50,000. Therefore, only limited funds were available to build the department.

In spite of these difficulties. Dr. Day developed laboratory exercises in biochemistry, brought the lectures up-to-date, gradually and painfully acquired needed equipment and supplies for the course. Although academic deficiencies and problems were enough to occupy his time, Dr. Day wanted to continue research. At Columbia University he had become interested in the vitamin B complex, particularly vitamin G (B_2), later identified as riboflavin, and had published with Dr. Sherman on the stability of vitamin A in plant foods. To do vitamin research, he needed an animal colony. Dr. Day presented the Dean with a modest request for $30 worth of lumber and supplies. He was told by the Dean in effect that the school had done very

*Chief of Laboratory Service, Veterans Administration Hospital, Little Rock, Ark.

well without research for years and the Dean didn't want to see that foolishness started. Dismayed but not defeated, Dr. Day bought the material out of his own meager salary, built the cages himself, trapped some wild rats and started research on effects of parathyroid administration on body calcium and phosphorus of rats, vitamin G content of foodstuff, and variations in antirachitic action of Arkansas sunshine. The cages were set up in a storeroom and Dr. Day had to feed and care for the animals himself. But he had the conviction that research was important and persisted in spite of official discouragement and personal hardship.

The observation that cataracts developed in the eyes of rats on vitamin G deficient diets led to a careful study of ocular changes in rats and mice on deficient diets and finally to cataractogenic effects of certain sugars, notably galactose and xylose. Dr. W. C. Langston of the Anatomy Department and Dr. K. W. Cosgrove, Professor of Ophthalmology, joined in these experiments. Pocketsful of rats were carried to the ophthalmologist to have their eyes examined by the slit lamp. If you have trouble striking up a conversation with strangers, try carrying a few white rats in your pockets. The sight of a friendly rat peeking around the coat lapel is a guaranteed ice-breaker.

In 1932 monkeys were obtained for the study of vitamin G deficiency in that species. This work developed into the discovery of vitamin M, later shown to be identical with folic acid and pteroylglutamic acid. More than 150 monkeys were used in these studies over a period of 20 years. Some of the amusing episodes of laboratory work, at least in retrospect, were derived from monkey business.

Although the University and Medical School were separate entities in seeking appropriations from the legislature, once the money was appropriated Fayetteville controlled the expenditures closely. On one occasion Mr. Carlson rejected a requisition for "shorts" for the monkeys, stating "Dr. Day will want to put them in dresses next." It took considerable correspondence to convince him that "shorts" was an article of diet. Chickens were also used as experimental animals, and several studies of enzyme systems developed out of the experiments on chickens. Bacteria were used in assaying vitamins also.

Dr. Day taught in this school through nearly half of its existence. His tenure covered the period of development into a fully accredited school with a full-time faculty, good laboratory and reasonably adequate clinical facilities, extensive research programs and graduate instruction. Having watched Dr. Day overcome obstacles, no one could ever convince me that time or facilities to do research were lacking.

Dr. Day had been head of the Department for six years when I joined the faculty while the school was still in the old building on Markham Street. It was my privilege to be his assistant for 14 years. The outstanding impression of these years with Dr. Day was that teaching was fun. Dr. Day had a keen sense of humor. Every member of the staff had an opportunity to contribute his own ideas, to experiment in teaching technics, and to participate in the research. The staff were treated as full partners with Dr. Day and were persuaded to apply their skills freely. Thus, each class and each problem became a personal challenge. I believe more graduate students would go into academic work if they could teach in that atmosphere.

During the 1930's Dr. Day had explored the possibility of an American Chemical Society section in Arkansas but could only find eight members in this area and no prospective members. This number did not increase significantly until after World War II. Dr. Day continued to develop interest in a section, making inquiries each year. He drove to other Arkansas cities to persuade non-member chemists to join. In 1950 enough members or prospective members lived within 90 miles of Little Rock to permit application for a section.

Dr. Day's broad interests and participation in religious, civic and cultural activities were stimulating. Ralph Waldo Emerson once said, "the only gift is a portion of thyself." Dr. Day has given richly and unstintingly of himself and a significant portion of him is forever in-

corporated in this school and this community. Philip James Bailey has written,

"We live in deeds, not years; in
thoughts, not breaths;
In feelings, not in shadows on a dial.
He most lives; who thinks most;
feels the noblest; acts the best."

Life in Little Rock has been richer and happier for us all, because Paul and Mildred Day lived here.

The Interrelationship of Nutrition and Metabolism with Respect to Amino Acids

ROBERT L. WIXOM, PH.D.*

This essay is concerned with the overlapping areas of nutrition and biochemistry of amino acids. The scope of modern nutrition is far more than a study of food and nourishment. While present day biochemistry is focused to a high degree on cellular reactions, it is by no means limited to these chemical transformations. An example of the inextricable intertwining of these disciples is the endogenous manufacture in one form of life of cell components that must be supplied exogenously in another organism which does not have this synthetic ability.

With respect to the amino acids, the building blocks for formation of tissue protein, it has been known for some twenty years that ten amino acids are required components of the diet for the maximum rate of growth of weanling rats. While these amino acids are said to be "essential," this adjective refers to their needed presence in the diet, and is unrelated to the cellular need for a larger number of amino acids for protein synthesis. The number and the amount required of the essential amino acid varies from species to species. As an example the chick has a nutritional requirement for eleven amino acids, the additional one being the simplest amino acid, glycine (1). Thus observations with laboratory animals cannot necessarily be transferred to man. The direct study in man was completed a few years ago by Dr. William C. Rose and his associates at the University of Illinois. Until this series of papers there was a dearth of precise information on the qualitative and quantitative requirements of the essential amino acids of adult man (2).

In these investigations each of the 42 healthy male graduate students consumed for a period of one to three months a purified diet composed solely of a mixture of crystalline amino acids, corn starch, sucrose, purified butter fat, corn oil, inorganic salts, vitamins, cellulose and filtered lemon juice. Such components, while both costly and monotonous, furnished 9.7 gm of nitrogen from the amino acid mixture and reduced the unidentified nitrogen to the low level of 0.3 gm. All the ingested food and the major excretions were analyzed daily for their nitrogen content. Whenever an essential amino acid was removed from the diet, the subject rapidly developed a state of negative nitrogen balance, *i.e.*, an increase in the nitrogen output over the nitrogen intake. By the complete omission of one amino acid at a time, it was found that eight amino acids are required to maintain nitrogen balance. These eight are tryptophan, phenylalanine, lysine, threonine, methionine, leucine, isoleucine and valine. Such negative balances were reversed by restoration of the missing essential amino acid.

Unlike the rat, arginine and histidine are dispensable amino acids for adult man. The observation with arginine was

*Assistant Professor, Dept. of Biochemistry, University of Arkansas School of Medicine, Little Rock, Ark.

anticipated as it is non-essential for the adult rat. The finding with histidine was quite unexpected, but has been repeatedly observed. However, whether the growing child needs preformed histidine, arginine or both of these amino acids must await further investigations. Furthermore, the possibility that non-essential amino acids might become indispensable during reproduction, lactation, detoxication or disease has not been excluded (3).

Knowing the qualitative amino acid requirements facilitated the subsequent study of the quantitative requirements. By stepwise lowering the intake of one given amino acid from an initial diet containing eight amino acids plus an additional source of nitrogen, the minimum requirement was determined to the nearest 0.1 gm. As to be expected, there is some variation in the observed minimum daily requirements; for valine, the values of 0.4, 0.4, 0.6, 0.7 and 0.8 were obtained (2). Thus some twelve years of arduous effort may be summarized by listing the observed ranges in gm per day for the requirements of the eight essential amino acids: tryptophan, 0.15-0.25; phenylalanine, 0.80-1.10; lysine, 0.40-0.80; threonine, 0.30-0.50; methionine, 0.80-1.10; leucine, 0.50-1.10; isoleucine, 0.65-0.70; and valine, 0.40-0.80 (2).

The higher figure in each stated range is the value that is tentatively proposed as "the minimum amino acid intake." However, since the possibility cannot be denied at present that human adults, other than those tested, may have even higher intakes, it is advisable that higher levels be employed to formulate diets for prevention of amino acid deficiencies. Statistical examination of the individual minima has demonstrated that the odds are overwhelmingly against the probability that another individual would have a minimal requirement that is greater than twice the highest observed value stated above. Thus twice the tentative minimum gives a value that is definitely a "safe intake," *i.e.*, the safe intake for valine is 1.60 gm. As values from many more individuals accumulate, it is conceivable that these safe quantities may be lowered without the possible hazard of an amino acid deficiency.

Certain other related observations from these human studies are summarized. The periods of acute negative nitrogen balance are usually associated with a failure of appetite, a sensation of marked fatigue, and an increase in nervous irritability. No correlation between amino acid requirement and body weight, body surface or creatinine output was detected (2, 3). The unnatural D isomer of methionine is as effective as the L-methionine. D-phenylalanine is used to a significant extent, whereas the other D-isomers are devoid of nutritional value. Work by other investigators (*cf.* 3) has indicated a lower requirement for young women for threonine, methionine, leucine and isoleucine; at present it is not clear whether this finding is due to differences in caloric intake, diets and/or criterion of adequacy. As the other four amino acids have the same range in both sexes, further investigation is needed to establish whether these reported sex differences are real or apparent (3).

By determination of the phenylalanine requirement first in diets devoid of tyrosine and then in the presence of tyrosine, it was possible to demonstrate the conversion in the human of phenylalanine by insertion of a hydroxyl group in the aromatic ring to form tyrosine, a metabolic reaction that is known to occur in lower animals. The results indicate that tyrosine is capable of exerting a sparing effect of 70 to 75 per cent upon the phenylalanine requirement in the adult (4). By the same approach evidence for the metabolic transformation of the sulfur of methionine to the sulfur of cystine in adult man was obtained. Cystine was capable of replacing 80 to 89 per cent of the minimal methionine needs (5). These two sparing effects, particularly the one with the sulfur-containing amino acids, have considerable nutritional importance, especially in those areas of the world where methionine appears to be the limiting amino acid in the native diets.

In all of the above experiments, the diet contained, in addition to the essential amino acids, sufficient excess nitrogen for tissue synthesis of the missing amino acids, *i.e.*, the non-essential ones. By stepwise removal of the urea and glycine that supplied this extra nitrogen, it was possi-

ble to reduce the total nitrogen intake from the usual 10.0 gms to 3.5 gm while continuing to maintain positive nitrogen balance (6). The level of 3.0 gm nitrogen intake led to negative balance. Of the 3.5 gm nitrogen, 1.42 gm was furnished by the nitrogen of the essential amino acids. Attention is called to the remarkable efficiency of such a mixture of essential amino acids, in which the proportion of each component is adjusted to the needs of the living organism. Furthermore, by appropriate calculations, it is possible to estimate that the minimal nitrogenous need for the synthesis of the non-essential amino acids in man cannot exceed 2.55 gm per day and is probably significantly less than this quantity (6).

The above information has some practical applications in nutrition. It is feasible now for the first time to directly evaluate proteins or diets in terms of their ability to meet normal human requirements. With data from a U. S. Dept. of Agriculture survey of the amounts and kinds of food purchased by different economic groups in this country and available analytical data, it can be shown that even the lowest income group in this country consumes the eight essentials in amounts which exceed the above safe intake values by factors of 1.4 to 3.0. Thus the possibility of an amino acid deficiency is remote in this country with the possible exception of food faddists and inmates of poorly managed institutions. Deficiencies in other countries with rice, corn or other cereal diets are under current investigation by nutritional scientists. The above evaluation of the nutritional quality of proteins may also be applied to the various preparations for parenteral use in humans. With the accumulation of amino acid requirements, it should be feasible to design an amino acid mixture whose composition is adjusted to the needs of the body.

More recent research work has focused on other phases of the metabolism and synthesis of the non-essential amino acids. Using growth studies with chicks, it was demonstrated that serine and glycine are nutritionally interrelated on the basis of their metabolic interconversion (1). The transformation of aminoethanol to glycine in the chick was also found present by a similar experimental approach (7).

In contradistinction to laboratory animals, there are of course microorganisms that can grow on ammonium salts and a carbon source such as glucose. These biological entities, which are distributed among the bacteria, yeasts and molds, have of course the capacity to synthesize all of their amino acids. The sequence and nature of these biosynthetic steps is an area of keen research interest. With respect to valine, the intermediate compounds are pyruvate, α-acetolactate, α-keto-β-hydroxyl isovalerate, α, β-dihydroxyisovalerate, α-ketoisovalerate and valine. Current research work in this laboratory is focused on the next to last step, the removal of water from α, β-dihydroxyisovalerate by an enzyme, which has some unique properties (8). Thus while all forms of life have the problem of formation of new protein and the growth of new protoplasm, there remain many fundamental differences among various biological entities in the biosynthesis of amino acids. It is our hope that continuing investigations in these areas will enlarge our understanding of basic processes in both nutrition and biochemistry.

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The Effect of Infectious Disease On Vitamin Metabolism

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There is a voluminous and somewhat bewildering literature on the *effect of vitamins on infectious diseases.* At one time or another almost every vitamin was claimed to increase resistance of some species to some kind of infection. For a number of years vitamin A was widely acclaimed as the "anti-infective vitamin." It is true that vitamin A deficient animals and humans are susceptible to certain infections of the respiratory and alimentary tracts and that this susceptibility to infection can be overcome by restoring normal vitamin A levels. But we know today that a person who has a normal vitamin intake cannot increase his resistance to infection by taking extra doses of vitamin A. The picture is different in the case of vitamin C. The evidence is somewhat controversial, but most authors seem to agree now that ascorbic acid requirements are increased in infectious diseases and that extra doses of ascorbic acid can have a beneficial effect, especially in chronic infections. Antibody response can apparently be inhibited in various vitamin deficiency states; this aspect has been reviewed by Axelrod and Pruzansky (1).

One complicating factor in such studies is the fact that vitamin deficiency does not always increase susceptibility to infection. In certain instances the deficiency increases resistance, apparently because the microorganism needs the respective vitamin more than does the infected host. Scrimshaw and co-workers, in their recent review on interactions of nutrition and infection (2) use the term "antagonism" for that situation where a nutritional deficiency results in decreased frequency or severity of an infection, and the term "synergism" where deficiency results in an increase. An example for antagonism is pantothenic acid deficiency in rabbits which was reported to be associated with an increased resistance to experimental infection with Type I pneumococci (3). Malaria experiments on monkeys showed that an otherwise fatal infection could be prolonged with the survival of the animal if all food or key nutrients were withheld at the proper time (4). This leads us to the treatment of infection by antimetabolites, the outstanding example being the sulfonamides, which interfere with the use of para-aminobenzoic acid in the synthesis of the vitamin, folic acid by some microorganisms. The inability to form folic acid in turn prevents growth of the microorganism without harming the host which cannot synthesize folic acid anyway.

So much, by way of introduction, on the effect of vitamins on infections. Now let us turn to our main topic, *the effect of infectious diseases on the vitamin status of the infected host.* By comparison, not much work has been done in this field. How can disease cause hypovitaminoses or vitamin deficiencies?

1). Insufficient ingestion, *e.g.*, low food intake in gastrointestinal and in pulmonary disease, after operations, in mental disorders.

2). Malabsorption. Examples: in diarrheal diseases, in biliary obstruction.

3). Poor utilization. Some dietary vitamins or provitamins are not utilized by the body as such, *e.g.*, carotene is converted to vitamin A, thiamine to cocarboxylase. The conversion of thiamine apparently occurs in the liver, and liver dysfunction, for instance in alcoholics, can lead to symptoms of thiamine deficiency (Wernicke syndrome).

4). Interference with storage. The very low vitamin A content of cirrhotic livers has been attributed to the replacement of many of the liver cells by fibrous tissue, which has little affinity for vitamin A(5). Chronic nephritis also leads to very low vitamin A stores in the liver. Loss of vitamin A in the urine has been found in this condition, which would indicate an interference with storage. How and why this kidney disease interferes with liver storage is not known. Increased

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vitamin excretion due to excessive fluid intake and polyuria could also be mentioned here, although there is no actual defect of storage in these conditions.

5). Increased demand. Thiamine requirement in the body is proportional to the metabolic rate. Therefore, fevers, hyperthyroidism and other conditions which increase the rate of metabolism, result in an increased thiamine requirement. The fact of increased vitamin C requirement in wound-healing is well established.

6). Increased destruction. It has been shown that a number of diseases, especially febrile infections, lead to low vitamin A stores in humans (6). Whether in the individual infection this is due to increased utilization or to interference with storage or to increased destruction, we do not know. But we do know that after vitamin A injections into rabbits and rats the vitamin disappears within a matter of hours, without being excreted or stored. Recent work of Pollard and Bieri (7) shows that the red blood cells are most active in the destruction of the vitamin. It will be interesting to see whether or not the vitamin A-destroying capacity of the red blood cells is influenced by infectious disease.

The probability of an increased vitamin C requirement in infectious diseases was mentioned in the introduction. This increased requirement may be due to increased destruction or utilization of the vitamin. Abt and co-workers (8) came to the conclusion that the lowered blood ascorbic acid and lowered excretion are not due to pyrexia per se but are due to the infectious process.

It is not known to what extent dietary vitamins are destroyed by intestinal bacteria, but in the case of vitamin C the hypothesis of decomposition by bacteria is in accord with the observation that certain scorbutic patients respond to injected, but not to oral, ascorbic acid (9).

The preceding classification is, of course, a rather arbitrary one. In practice, it may often be quite impossible to differentiate clearly between these possible causes of hypovitaminoses which arise in spite of a normally sufficient vitamin intake.

Our own experiments in this field are an outgrowth of studies on the protein metabolism of vitamin E deficient rabbits. Vitamin E deficiency in the rabbit is characterized by high urinary creatine excretion and in the advanced stage by muscular dystrophy. In one of these experiments we had two sets of rabbits, one set receiving a vitamin E-free diet, the other set receiving the same diet plus oral doses of vitamin E. The composition of the diet has been described elsewhere (10). To our surprise the animals of the control group developed some of the same signs of vitamin E deficiency which appeared in the intentionally deficient group. It turned out that the animals (which had been purchased from a commercial breeder) had hepatic coccidiosis. Analysis of the livers of those animals which had died with the disease, revealed a virtually complete absence of vitamin E. Most of the infected animals had a high urinary creatine excretion for more or less extended periods. Histologic sections from skeletal muscle of some of the infected rabbits showed the typical lesions of nutritional muscular dystrophy, while the muscles of others appeared normal or only moderately dystrophic. Non-infected rabbits raised on the same diet and supplied with the same oral amounts of vitamin E have never shown any sign of vitamin E deficiency. Apparently, hepatic coccidiosis leads to a state of vitamin E deficiency which in some cases is severe enough or exists long enough to cause muscular dystrophy.

This conclusion is supported by the response of animals which were intentionally infected with *Eimeria stiedae*, to massive injections of water-soluble vitamin E preparations. Animals which had lost weight or had ceased to gain weight, gained weight after the injections. High urinary creatine excretions were reduced to normal. Ultimately, most of the infected rabbits lost weight and died in spite of the injections. This is not surprising, as hepatic coccidiosis is for young rabbits a very severe disease which certainly leads to other metabolic aberrations in addition to E-avitaminosis. It can therefore not be expected that vitamin E injections always and permanently prevent weight loss. The fact that there is a favorable response to vitamin E injections in some stage of the disease supports the

idea that, at least in this stage, the animal is in a state of vitamin E deficiency.

In the course of these studies we have observed xerophthalmia in some rabbits, *i.e.*, the very typical lesions of the eyes which are caused by vitamin A deficiency. In one case a single massive injection of vitamin A was given which resulted in complete disappearance of the lesion within 30 hours. Analyses for vitamin A contents of livers of the sick animals are still incomplete, but we can already say that hepatic coccidiosis of the rabbit can lead not only to vitamin E deficiency but also to vitamin A deficiency. As the avitaminosis E leads only in some cases to muscular dystrophy, so is the lack of vitamin A only in some cases severe enough to cause xerophthalmia.

A few studies on the effect of parasites on the vitamin A status have come from other laboratories. The most clear-cut evidence that parasites can profoundly affect vitamin A levels has been presented by Davies (11) who found extremely low liver reserves in chickens infected with either the caecal (*Eimeria tenella*) or the intestinal type (*Eimeria necatrix*) of avian coccidiosis. Soliman (12) found low reserves of vitamin A in the livers of cattle which were infected by lung worms.

In view of the very widespread occurrence of parasitic infections in man in many countries, the present findings may not be without significance for human medicine.

In closing, I wish to thank Mrs. T. E. Ashcraft who has done most of the laboratory work upon which this report is based.

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Nutritional Muscular Dystrophy In the Monkey

JAMES S. DINNING, PH.D.*

Nutritional muscular dystrophy refers to the syndrome which develops in certain laboratory animals fed diets deficient in vitamin E (1). Rabbits, guinea pigs and chicks after receiving a vitamin E deficient diet for several weeks develop generalized muscular weakness. Upon histologic examination one sees characteristic degeneration of the skeletal muscle. This condition may be cured with dietary supplements of vitamin E or may be prevented if vitamin E is included in the diet. In addition to nutritional muscular dystrophy various other signs of vitamin E deficiency may be seen in various species. For example, chicks may develop certain neurologic signs, the condition being referred to as nutritional encephalomalacia. Other signs of vitamin E deficiency which may sometimes be seen in various laboratory animals are infertility, exudative diathesis and hepatic necrosis.

Since the signs of vitamin E deficiency appear to vary among species it became desirable to study vitamin E deficiency in the monkey in order to see how this primate would respond to deprivation of vitamin E. The results perhaps could indicate what symptoms one might expect to observe in vitamin E deficiency in man.

Young rhesus monkeys were given a purified diet containing all the known nutrients required by the monkey except vitamin E (2). The purified components of the diet were mixed, a small amount of water was added and the diet was then baked in an oven to a solid state. The monkeys consumed this diet readily and after a period of feeding of approximately one year developed certain, clear-cut signs of vitamin E deficiency. The monkeys exhibited the well known signs of nutritional muscular dystrophy. Movement became slow, the animals would climb up the cages with difficulty and eventually they were unable to climb at all. As the deficiency signs progressed the animals were eventually unable to right themselves when placed on their sides. Histologic study of autopsy cases confirmed the diagnosis. All skeletal muscle appeared to be affected including intercostal muscles and diaphragm. When these animals were treated with various vitamin E preparations such as α-tocopherol acetate or α-tocopherol phosphate improvement was noticeable within a short period. After approximately three to four weeks of vitamin E feeding, these animals appeared normal. Histologic study of recovered monkeys indicated that the lesions of the skeletal muscle were reversed by vitamin E supplementation.

Vitamin E deficiency in the monkey was found to result in anemia (2). The anemia developed before clear-cut physical signs of dystrophy were apparent. This anemia was found to be slightly macrocytic. Bone marrow from vitamin E-deficient animals was hyperplastic as judged by deoxyribonucleic acid concentrations (3). The anemia, together with the hyperplasia in the bone marrow, suggested that the survival of the red cells may have been shortened in these animals. Red cell survival studies were carried out using the chromium^{51} technic (4). It was found that the average survival of the red cell in the normal monkey was approximately 100 days, whereas in the vitamin E deficient animals the survival time of the erythrocytes was reduced to approximately 40 days. Treatment of the deficient animals with α-tocopherol restored erythrocyte survival values to normal. Therefore it appears that the anemia which consistently develops in vitamin E deficient monkeys is due at least in part to an increased rate of destruction of red cells. It should be pointed out that when the anemic animals are treated with tocopherol phosphate the very satisfactory reticulocyte response occurs (2). This suggests that in addition to influencing erythrocyte survival time vitamin E may

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have some more direct influence on red cell maturation.

Many biochemical studies were conducted on the vitamin E deficient monkeys. The deficient animals excreted extra quantities of creatine and allantoin and reduced quantities of creatinine (2). Also, the concentration of tissue nucleic acids and the turnover rates of tissue nucleic acids were found to be elevated in the vitamin E deficient monkeys (3, 5). These findings also in agreement with observations on other species.

The results of these experiments demonstrate the consistent production of vitamin E deficiency in a primate. Many of the deficiency signs are the same as those seen in other laboratory animals. Of particular interest, however, is the anemia which develops quite early in vitamin E deficient monkeys. This is in contrast to observations made on other species. The possibility exists that certain undefined anemias in man may be the result of mild tocopherol deficiency.

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The Biological Effects of X And Gamma Radiation

JOHN W. LANE, M.D.*

In December of 1895, Wilhelm Konrad Roentgen published his paper describing a new type of penetrating radiation which he termed x-rays. In December of the following year, Henri Becquerel published his account of a strange penetrating radiation which appeared to arise spontaneously in certain salts of uranium. The radiation from uranium was found to consist of three types of rays which were named after the first three letters of the Greek alphabet: alpha, beta, and gamma. The alpha and beta rays were found to be particles of relatively small penetrating power, but the gamma rays were found to be non-corpuscular and of the same nature as Roentgen's x-rays.

An article appeared in the February 1896 issue of the Journal of the American Medical Association (1) in which the possible therapeutic use of x-rays was suggested. By the spring of that year, numerous reports had been made relative to skin changes produced by x-rays. In December of 1898, Pierre and Marie Curie announced their discovery of radium, and shortly thereafter, persons working with radium reported skin reactions similar to those produced by x-rays. Before the turn of the century, x-ray therapy of malignant tumors had been attempted, both in Europe and in this country, with varying degrees of success. Thus, for over half a century, man has been witnessing the effects, both accidental and deliberate, of these highly-penetrating radiations upon human tissues. Some of these reactions were observed under most distressing circumstances since the subtlety of their effect was not so quickly realized. In August of 1945, a more violent and mass example of the effect of gamma radiation was observed. The nuclear device detonated over Hiroshima resulted in some 70,000 deaths and 70,000 severe injuries. (2) Approximately 30 per cent of the injured survivors were victims of radiation effects of one form or another.

During the last 65 years, an intense investigation has been in process to determine the basic mechanisms involved in producing the effects these radiations have upon living matter. Much of the time this search was conducted in obscurity, some of the time it was conducted in secrecy, and for the past 10 years it has been the subject of much notoriety. A general though brief outline of the fruits of these investigations to date is the subject of this paper.

Both X and gamma radiation were the subjects of intensive study in the years immediately following their discovery. It was quickly realized that they were types of electromagnetic radiation and, therefore closely related to more familiar phenomena such as visible light, radio waves, infra-red rays and ultra-violet rays. (Fig. 1) Their distinguishing characteristic was an ability to penetrate matter which is normally opaque to the more familiar members of their family. This penetrability is closely related to the energy content of electromagnetic radiation. Energy, wave length and frequency are all related to each other according to the following equation:

(1) $E = h \times \nu$

(2) $C = \lambda \times \nu$

where:

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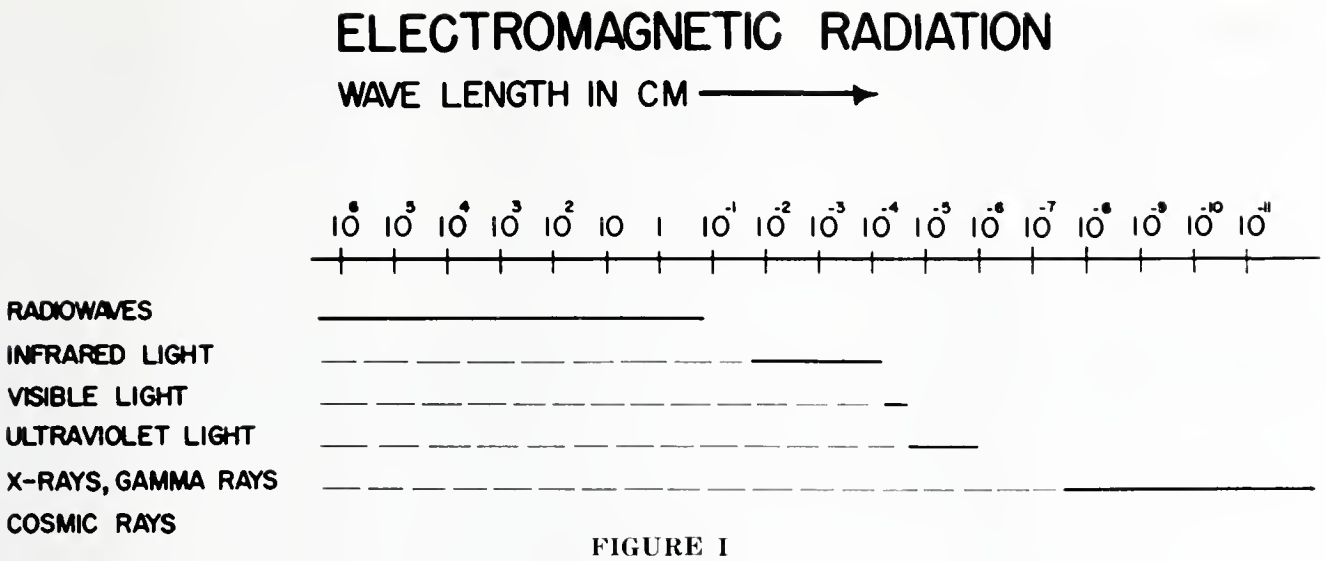


FIGURE I
The Electromagnetic Spectrum

E=energy in ergs
h=Plancks constant=6.625×10^{-27} erg—sec.
ν=frequency in vibrations/sec.
λ=wave length in cm.
C=speed of light—3×10^{10} cm./sec.

Thus one observes that X and gamma radiation may be considered to be forms of energy which in many ways, act like waves much like those observed upon the surface of water. In other ways, they behave as though they are made up of tiny packets of energy called photons (each photon containing $h\nu$ ergs; see formula 1). The term photons will be used throughout this paper synonymously with X and gamma radiation. The transferral of this energy from electromagnetic radiation to matter through which it passes is the basic phenomenon leading to the end results one sees and interprets as radiation effects.

The transferral of this energy is accomplished in several different ways. For our purposes, we may consider 3 prime processes which account for over 95% of the energy transfer in tissue at the photon energy levels with which we are concerned (*i.e.*, conventional and super voltage x-ray therapy, diagnostic x-rays, cobalt and radium radiation, nuclear weapons radiation, etc.). These three processes are:

(1) The photoelectric effect
(2) Compton scatter
(3) Pair production

THE PHOTOELECTRIC EFFECT: The photoelectric effect is diagrammed in figure 2[3]. An incident photon interacts with an orbital electron (*i.e.*, an electron occupying a definite energy orbit within the concepts of the Bohr Atom) and releases its total energy to this electron. The electron may be completely removed from its parent atom and the free electron along with its parent atom (now an ion, with a unit positive charge) is called an ion pair. This process is called *ionization.* (Fig. 3) On the other hand, the electron may not be completely removed from the atom by the incident photon, but may receive only enough energy to displace it to a higher energy orbit. This process is called *excitation.* (Fig. 3) The electron emitted during ionization can in turn collide and interact with other orbital electrons causing further ionization or excitation. By these multiple interactions and collisions the total energy of the incident photon may be completely transferred to the target tissue.

The photoelectric effect is important at relatively low photon energies. It is the predominant interaction at energies below 0.1 Mev.* in tissue. This effect is dependent upon the atomic number of the target material and the probability of this interaction occurring increases as the fifth power of Z (the atomic number). However, it is seen to decrease approximately as the inverse third power of the

*ev: electron volt=The kinetic energy an electron accumulates upon being accelerated through a potential of 1 volt. Mev.=1 million electron volts=1.59×10^{-6} ergs.

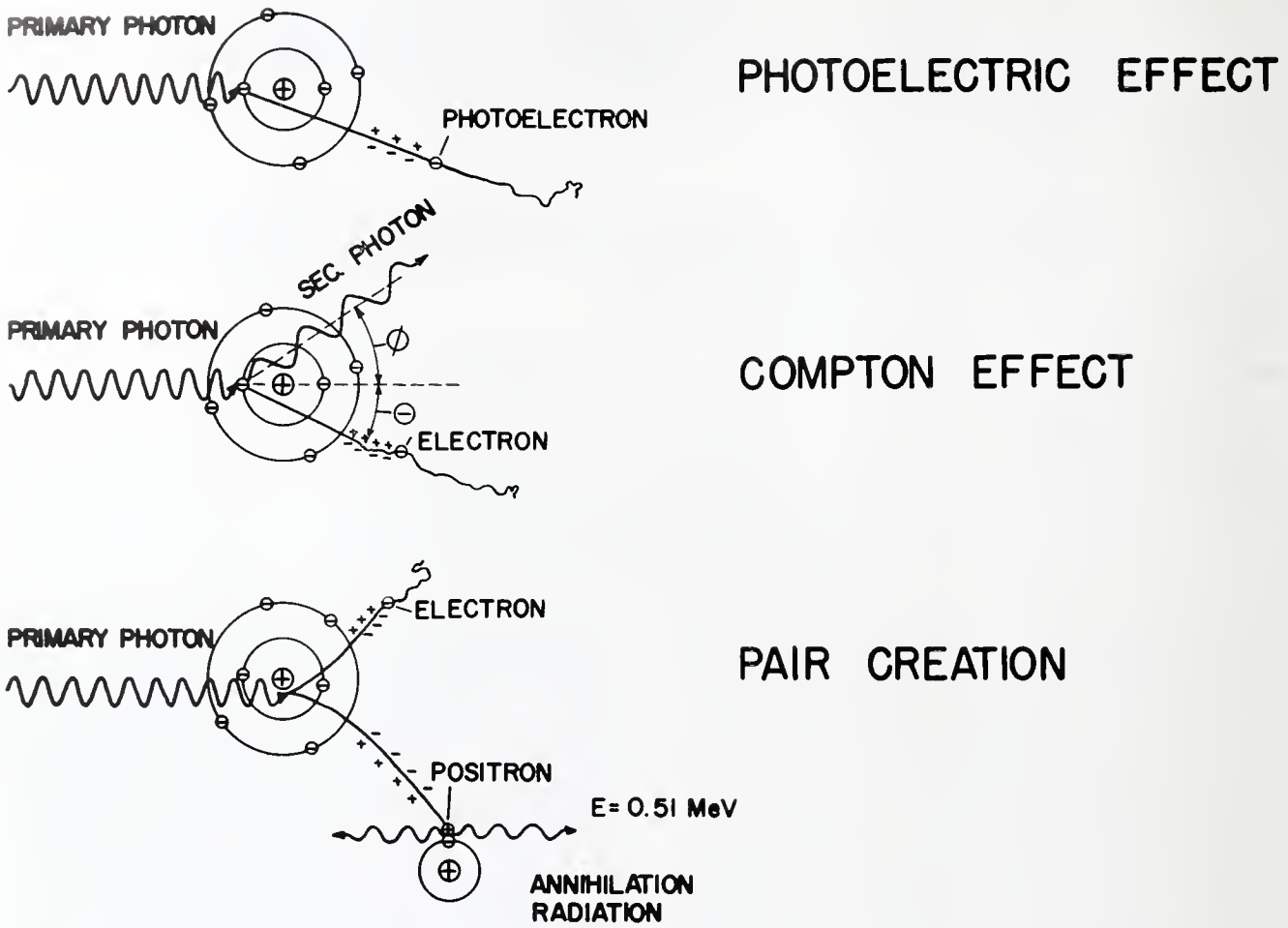


FIGURE II
Major Physical Reactions of Photons With Matter

photon energy.[4] The following formula presents this relationship:

T=probability for the photoelectric interaction to occur.

Z=atomic number of target material.

E=Energy, in Mev., of incident photon.

For tissue this formula becomes:

$T=2.54\lambda^{3.22}$

Where λ=wave length in cm. of incident photon.

The photoelectric effect can occur only as an interaction with orbital (or atomic bound) electrons, since it is not possible to satisfy the conservation of momentum law considering photon-electron system alone. The presence of the atomic nucleus, which rebounds to a sufficient degree to carry off some momentum, is a necessary prerequisite.

COMPTON SCATTER: Compton scattering is the interaction responsible for scattering of the x-ray or gamma ray beam and necessitates the elaborately shielded rooms which are seen wherever these radiations are used. Figure 2 shows schematically the Compton process which was described by Arthur H. Compton in 1922. It is seen that the Compton process differs from the photoelectric process in one important way. The incident photon gives up only a part of its energy to the electron and the remaining energy is carried off by a photon traveling in a new direction (scattered) and with a lower energy. Another less practical difference between Compton and photoelectric interactions is that no momentum restriction confines Compton interactions to bound electrons. Therefore, the Compton process may occur with both orbital and free electrons (those not associated with a definite atomic energy orbit). The scattering process is significant in that a well-defined, collimated, monoenergetic incident beam emerges from the target material poorly defined and containing diffuse heterogenous energies. The Compton effect occurs most frequently, and is the predominant interaction, at energies be-

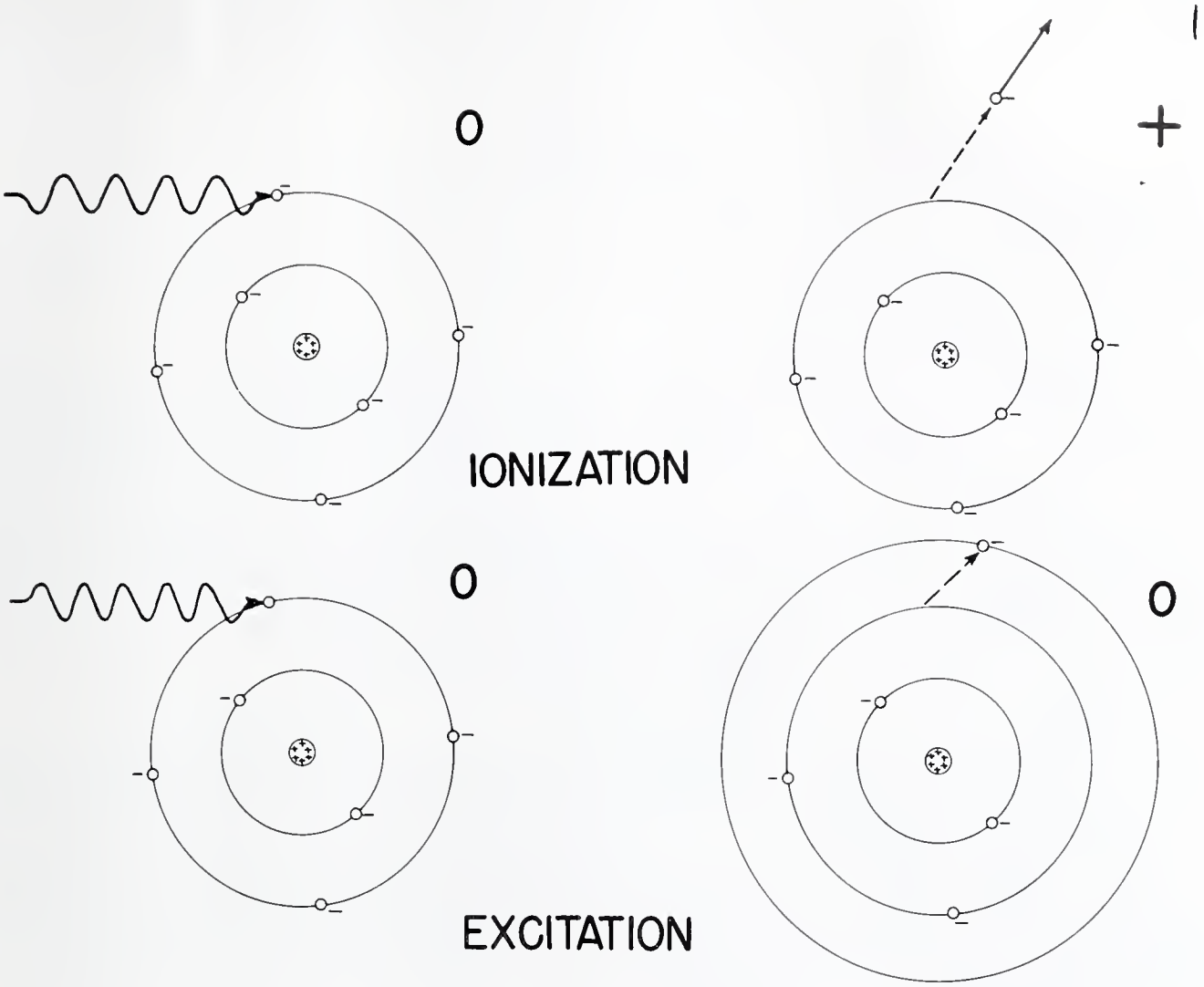


FIGURE III
Excitation and Ionization

tween 0.5 and 5 Mev. It is dependent only upon the first power of Z and thus is not so radically dependent upon target material as is the photoelectric effect. For this reason one sees less differential absorption of higher energy photons by different tissues. This phenomenon is observed in roentgenograms made with high voltage technique which look gray and are without contrast due to more nearly equal probability of interactions of the radiation with the many different types of tissues.

The angle of scatter and the energy distributed to the Compton electron and the scattered photon is given by the following equation:[4]

$$\cot \frac{\varphi}{2} = (1 - \overline{0.52}) \tan \theta$$

$$\triangle\lambda = 0.0242 \ (1\text{-}\cos \phi)$$

Where $\triangle\lambda$ = change in the wave length (which results in a degradation of energy) of the incident photon in Angstrom Units ($= 10^{-8}$ cm.)

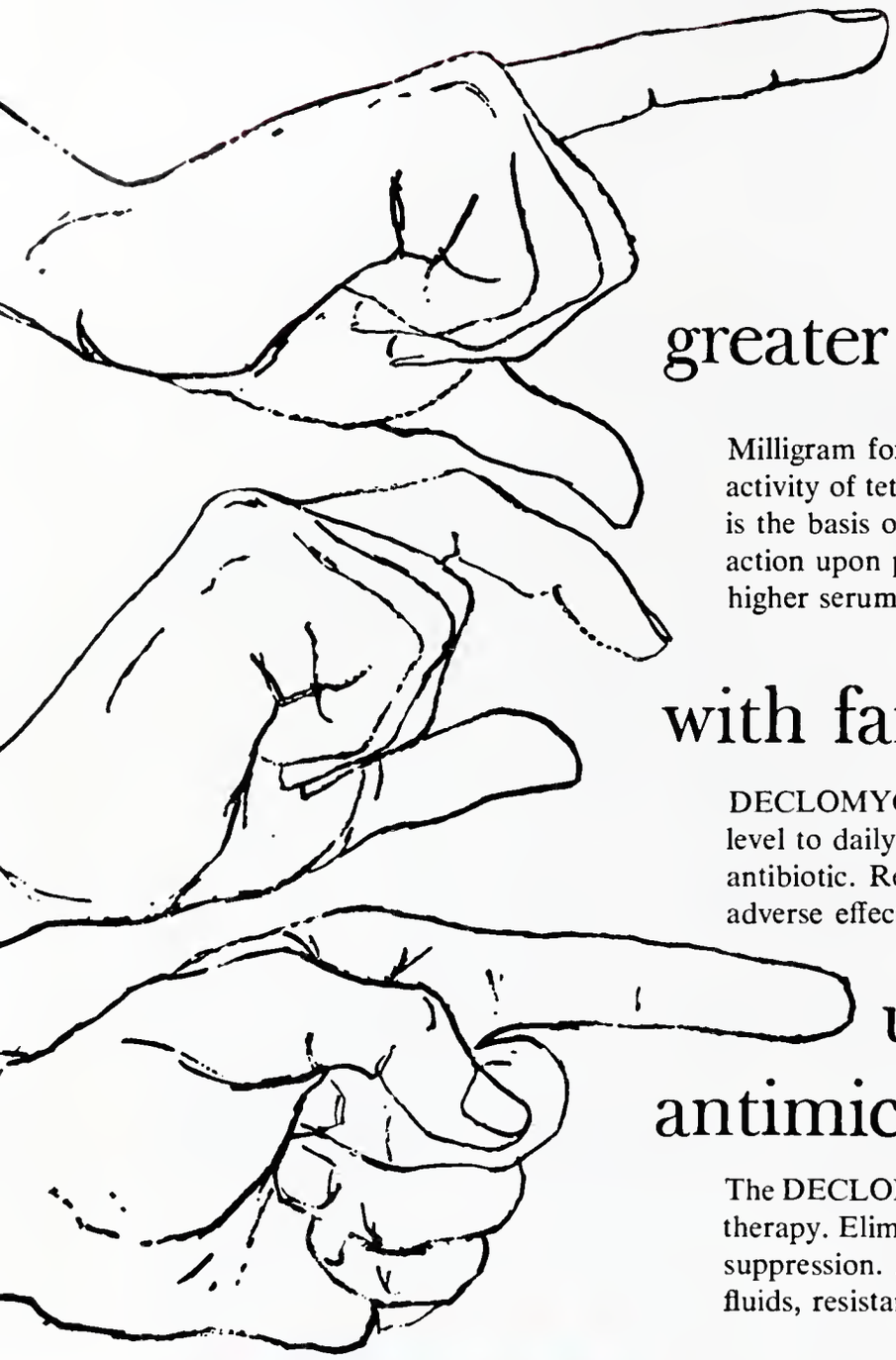
ϕ = angle of scatter of incident photon
θ = angle of scatter of Compton electron
$h \times \nu$ = energy of incident photon in ergs.

The intensity of scatter at various scattering angles (angle ϕ fig. II) may be determined by a complicated relationship derived by Klein and Nishina in 1929. Suffice it to say that at high energies, scatter tends to be at smaller angles; at lower energies, there is a tendency toward large angle scatter.

As described in the photoelectric effect, the Compton electron may also produce ionization and excitation. Although the process is quite different, the same basic end result occurs.

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*Hirsch, H. A., and Finlan
New England J. Med. 26
(May 28)

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Means, Paul N. ..... Malvern, 2104
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HOWARD-PIKE COUNTY

Dildy, Edwin V., Jr. ..... Nashville, 133
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Calaway, W. H. ..... Batesville, RI 3-5251
Churchill, C. A. ..... Batesville, RI 3-5194
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Jones, W. A. ..... El Paso, Texas
Keller, Glen E. ..... Mountain View, CO 9-3236
Ketz, W. J. ..... Batesville, RI 3-2371
Lytle, Jimmie ..... Batesville, RI 3-3168
McAdams, V. D. ..... Cord, PI 6-3517
Monfort, J. J. ..... Batesville, RI 3-5251
Monroe, Howard U. ..... Mountain View, CO 9-3236
Slaughter, Bob L. ..... East St. Louis, Illinois
Tatum, Harold M. ..... Melbourne, 50
Taylor, Chaney W. ..... Batesville, RI 3-5251
Taylor, Charles A. ..... Batesville, RI 3-5251
Walker, A. T. ..... Mammoth Springs, 66
Weathers, James L. ..... Salem, TW 5-3313
Woods, O. S. ..... Salem, TW 5-3411
Wyatt, Finnis Q. ..... Batesville, RI 3-5251

JACKSON COUNTY

Ashley, John D., Jr. ..... Newport, JA 3-2320
Baird, H. M. ..... Newport, JA 3-3661
Dawson, David ..... Newport, JA 3-5871
Harris, M. Haymond ..... Newport, JA 3-5B71
Jackson, Jabez F. ..... Newport, JA 3-5B71
Norris, R. O. ..... Tuckerman, FI 9-2250
Novak, Edward J. ..... Tuckerman, FI 9-2429
Robertson, Gerald G. ..... Newport, JA 3-3661
Stanfield, Wayne G. ..... Newport, JA 3-3321
Walker, H. O. ..... 18 Morning Rd., Little Rock
Williams, Thomas E. ..... Newport, JA 3-3661
Wright, John C. ..... Newport, JA 3-5871

JEFFERSON COUNTY

Anderson, Charles W. ..... 110B½ Poplar, Pine Bluff, JE 4-B651
Atnip, Gwyn ..... 1409 Cherry, Pine Bluff, JE 5-3551
Barksdale, Barbara A. ..... Rison, 213
Brown, James A. ..... Rison, 211
Bruce, W. H. ..... 405 W. 2nd, Pine Bluff, JE 5-2142
Bryant, R. Frank ..... 1112 Linden, Pine Bluff, JE 4-4352
Burford, Thomas G. ..... Saudi Arabia
Campbell, James W. ..... Altheimer, PO 6-2601
Causey, Hunter A. ..... 1310 Cherry, Pine Bluff, JE 4-6210
Clark, O. W. ..... 4001 Cherry, Pine Bluff, JE 4-0761
Cunningham, T. J., Jr. ..... 300 W. 6th, Pine Bluff, JE 4-4723
Cunningham, T. J., Sr. ..... 2420 Linden, Pine Bluff, JE 4-1906
Dickins, Robert D. ..... 1003 Cherry, Pine Bluff, JE 4-B141
Fergusson, J. P. ..... Altheimer, PO 6-2581
Flowers, Cleon A. ..... Masonic Bldg., Pine Bluff, JE 4-5523
Fowler, Arthur, Jr. ..... 917 Cherry, Pine Bluff, JE 4-3561
Glasscock, R. E. ..... National Bldg., Pine Bluff, JE 4-0413
Handley, W. H., Jr. ..... 1202 Cherry, Pine Bluff, JE 5-2334
Hart, J. Clyde, Jr. ..... 1310 Cherry, Pine Bluff, JE 4-6210
Hundley, Louis K. ..... 1008 W. 11th, Pine Bluff, JE 4-B363
Hutchison, E. L. ..... National Bldg., Pine Bluff, JE 5-1562
Hyman, Carl E. ..... Nashville, Tennessee
Irwin, Raymond A. ..... 1421 Cherry, Pine Bluff, JE 5-2200
Lawlah, Clyde A. ..... 329½ Main, Pine Bluff, JE 4-1912
Lowe, W. T. ..... National Bldg., Pine Bluff, JE 4-3514
Luck, Benjamin D., Jr. ..... National Bldg., Pine Bluff, JE 4-1220
McAllister, James, Jr. ..... 1214 Main, Pine Bluff, JE 4-0671
McCain, B. E. ..... 2318 Cherry, Pine Bluff, JE 4-1B67
McCaughey, Donald J. ..... 1421 Cherry, Pine Bluff, JE 5-2200
McDonald, Robert L. ..... 110B½ Poplar, Pine Bluff, JE 4-B651
*McMullen, E. C. ..... Pine Bluff
Maynard, Ross E. ..... National Bldg., Pine Bluff, JE 4-5732
Meredith, Wm. R. ..... 927 Cherry, Pine Bluff, JE 4-3561
Monroe, S. C. ..... 1421 Cherry, Pine Bluff, JE 5-2200
Morris, Harold J. ..... 1030 Poplar, Pine Bluff, JE 4-0B22
Nixon, Wm. R. ..... National Bldg., Pine Bluff, JE 4-0413
Payne, Virgil L. ..... 802 W. 5th., Pine Bluff, JE 4-561B
Perry, Virgil B. ..... 1019 Cherry, Pine Bluff, JE 5-4141
Pierce, J. R., Jr. ..... 1202 Cherry, Pine Bluff, JE 5-3443
Pollard, Arlee E. ..... 1805 W. 33rd, Pine Bluff, JE 5-1954
Raney, Oliver C. ..... 1021 Cherry, Pine Bluff, JE 4-5B61
Reed, E. Frank, Jr. ..... 916 Cherry, Pine Bluff, JE 5-0121
Reed, Ulysses S. ..... Masonic Temple, Pine Bluff, JE 4-6910
Reid, Charles W. ..... 1113 Cherry, Pine Bluff, JE 4-0240
Rhyne, James T. ..... 1111 Cherry, Pine Bluff, JE 4-1631
Riley, Wm. K. ..... 917 Cherry, Pine Bluff, JE 5-3561
Robinette, Joseph S. ..... 1115 Cherry, Pine Bluff, JE 5-2372
Russell, Allen R. ..... 1021 Linden, Pine Bluff, JE 5-2252
Searcy, James B. ..... Altheimer, PO 6-2601
Shelton, M. A. ..... Wabbaseka, PO 6-4418
Simmons, Calvin R. ..... 1002 W. 14th, Pine Bluff, JE 5-3213
Spillyards, J. S. ..... National Bldg., Pine Bluff, JE 4-1244
Stern, Howard S. ..... 1315 Linden, Pine Bluff, JE 4-0342
Sullenberger, A. G. ..... 1108 Poplar, Pine Bluff, JE 4-4407
Talbot, George B. ..... 1421 Cherry, Pine Bluff, JE 5-2200
Townsend, Thomas E. ..... 1310 Cherry, Pine Bluff, JE 4-6210
Walker, John K. ..... 1107 Cherry, Pine Bluff, JE 5-0B31
Wilkins, Walter J., Jr. ..... 1421 Cherry, Pine Bluff, JE 5-2200
Wineland, H. L. ..... 917 Cherry, Pine Bluff, JE 4-3561
Wirthlin, Milton R. ..... 405 West Second, Pine Bluff
Wooley, Ralph R. ..... 1125 Cherry, Pine Bluff, JE 4-2261

JOHNSON COUNTY

*Graves, S. M. ..... Clarksville
Hardgrave, George L. ..... Clarksville, PL 4-2711
Kolb, James M., Jr. ..... Tulsa, Oklahoma
Kolb, James M., Sr., President ..... Clarksville, PL 4-2007
Manley, Robert H. ..... Clarksville, PL 4-2050
Scarborough, W. R. ..... Clarksville, PL 4-2512
Shrigley, Guy P. ..... Clarksville, PL 4-2043
Siegel, G. Reginald ..... Clarksville, PL 4-2050

LAFAYETTE COUNTY

Cross, Charles ..... Stamps, LE 3-4561
Harris, Howard R. ..... Lewisville, 142
Harrison, R. H. ..... Lewisville 1B9
Lee, Willie J. ..... Stamps, LE 3-4131

LAWRENCE COUNTY

Case, James W., Jr. ..... Walnut Ridge, TU 4-2471
Cruse, E. J. ..... Black Rock, TR B-6209
Elders, J. B. ..... Walnut Ridge, TU 4-3162
Joseph, Ralph ..... Walnut Ridge, TU 4-3211
Riggs, Orval E. ..... Medical Center, Little Rock, MO 6-9461
Townsend, C. C. ..... Walnut Ridge, TU 4-3410
Whittington, J. J., III ..... Walnut Ridge, TU 4-3552

LEE COUNTY

Carlton, Irwin L. ..... Marianna, CY 4-2677
Chaffin, C. W. ..... Moro, RO B-4434
Dozier, Floyd S. ..... Marianna, CY 4-2107
Gray, Dwight W. ..... Marianna, CY 4-3131
Hays, Wm. C., Jr. ..... Marianna, CY 4-2323
McLendon, Mac ..... Marianna, CY 4-2711
Nowell, E. C. ..... Marianna, CY 4-2616

LINCOLN COUNTY

Dixon, Charles W. ..... Gould, CO 3-3412
Freeland, James W. ..... Star City, 221
Gardner, Buford M. ..... Poplar Bluff, Missouri
Petty, Richard C. ..... Star City, 4

LITTLE RIVER COUNTY

McPherson, Herbert A. ..... Ashdown, TW B-3306
Peacock, N. W., Jr. ..... Ashdown, TW 8-3306
Shelton, Joseph G., Jr. ..... Ashdown, TW 8-3306

LOGAN COUNTY

Center, W. B. ..... State Sanatorium, 333
Flora, Wayne W. ..... State Sanatorium, 333
*Hederick, A. R. ..... Booneville
Henry, Cad A. ..... State Sanatorium, 333
Loveless, Donald E. ..... Booneville, 4101
Riley, J. D. ..... State Sanatorium, 333
Smith, Charles McD ..... Paris, 190
Smith, James T. ..... Paris, 190
Smith, John F. ..... Paris, 190
Wise, John D. ..... Malvern, 1583

LONOKE COUNTY

Corn, F. A. ..... Lonoke, OR 6-6563
Gartman, J. F. ..... Carlisle, 2596
Good, Henry H. ..... England, VI 2-2051
Holmes, B. E. ..... Lonoke, OR 6-6560
McEntire, H. E. ..... England, VI 2-3301
Martin, J. A. ..... Cabot, BA 4-2581
Parker, Wm. M. ..... DeValls Bluff, 4741
Washburn, C. Yulan ..... Cabot, BA 4-2141

MADISON COUNTY

Beeby, Charles B. ..... Huntsville, 55
Smith, Austin C. ..... Huntsville, 132-L

MILLER COUNTY

Brown, J. Royston ..... 1112 Wheeler, Texarkana, 33-2111
Burnett, J. W. ..... 414 Hazel, Texarkana, 2-7301
Cantrell, Frank P. ..... 619 Main, Texarkana, 3-5173
Daniel, N. B. ..... 317 State Line, Texarkana, 32-8231
Davis, E. L. ..... 317 State Line, Texarkana, 32-8231
Ellison, Eugene T. ..... 619 Main, Texarkana, 3-5173
Goesl, Andrew G. ..... 3301 Pine, Texarkana, 22-1671
Good, Louis P. ..... 5th and Hazel, Texarkana, 23-2121
Griffin, John S. ..... 619 Main, Texarkana, 3-5173
Harrell, Wm. B., Jr. ..... 317 State Line, Texarkana, 32-8231
Harrison, James W. ..... 401 E. 5th, Texarkana, 23-2121
Hughes, Robert P. ..... 401 E. 5th, Texarkana, 32-2372
Jones, J. W. ..... 401 E. 5th, Texarkana, 23-2121
Kemp, K. H. ..... 408 Hazel, Texarkana, 2-5181
Kirkpatrick, R. R. ..... 6th and Walnut, Texarkana, 22-0222
Kittrell, J. B. ..... Box 1453, Texarkana, 2-7922
*Lanier, L. H. ..... Texarkana
Laws, J. K. ..... St. Michael's Hospital, Texarkana, 2-7297
Leslie, Charles L. ..... 315 E. 5th, Texarkana, 22-0231
Middleton, B. C. ..... State National Bank Bldg., Texarkana, 2-5321
Murry, Harry E. ..... 320 E. 5th, Texarkana, 22-1322
Parson, George W. ..... 401 E. 5th, Texarkana, 23-2121
Pickett, R. W. ..... 226 E. 6th, Texarkana, 2-5622
Rodgers, N. L. ..... 401 E. 5th, Texarkana, 23-2121
Rushing, Louis U. ..... 515 Olive, Texarkana, 32-6531
Smith, Wm. D. ..... 119 E. 6th, Texarkana, 22-0111
Teasley, Gerald H. ..... 401 E. 5th, Texarkana, 23-2121
Thompson, Charles A. ..... 619 Main, Texarkana, 3-5173
Thornton, Wm. D. ..... 619 Main, Texarkana, 3-5173
White, Luther R., Jr. ..... 619 Main, Texarkana, 3-5173
Wilhelm, Frieda ..... 2905 Main, Texarkana, 3-52B0
Williams, J. F. ..... 220 W. 5th, Texarkana, 33-3032
Yarbrough, Charles P. ..... 518 Hazel, Texarkana, 2-5472

MISSISSIPPI COUNTY

Atkinson, Gean S. ..... Blytheville, PO 2-212B
Beasley, Joe E. ..... Blytheville, PO 3-3326
Blodgett, Don H. ..... Wilson, 2411

Brownson, J. F. ..... Tucson, Arizona
Cole, C. R. ..... Blytheville, PO 3-7223
Elliott, J. Q. ..... Blytheville, PO 3-4548
Ellis, N. 8. ..... Wilson, 2411
Fairley, Eldon ..... Osceola, LO 3-2686
Fairley, Julian ..... Osceola, LO 3-2686
Files, James B. ..... Blytheville, PO 3-3552
Godley, M. L. ..... Blytheville, PO 3-8118
Green, W. O., Jr. ..... Blytheville, PO 3-6802
Hubener, L. L. ..... Blytheville, PO 2-2021
Johnson, I. R. ..... Blytheville, PO 2-2041
Johnson, R. L. ..... Blytheville, PO 3-4526
Massey, Lorenzo D. ..... Osceola, LO 3-4242
Owen, Wm. M. ..... Wichita, Kansas
Payne, Troy ..... Blytheville, PO 3-6132
Polk, J. T. ..... Keiser, 2692
Rainwater, W. T. ..... Blytheville, PO 3-8118
Rhodes, R. F. ..... Osceola, LO 3-2361
Rodman, T. N. ..... Leachville, 99
*Sheddan, W. J. ..... Osceola
Sims, Hunter, Jr. ..... Blytheville, PO 3-8032
Sims, Hunter, Sr. ..... Blytheville, PO 3-4458
Utley, F. E. ..... Blytheville, PO 3-6081
Walls, James M. ..... Blytheville, PO 3-6082
Webb, James Jackson ..... Blytheville, PO 2-2131
Workman, W. W. ..... Blytheville, PO 3-8118

MONROE COUNTY

Dalton, M. L. ..... Brinkley, 205
David, N. C., Jr. ..... Brinkley, 992
Long, Jere L. ..... Brinkley, 998
McKnight, Edward D. ..... Brinkley, 77
Pupsta, Benedict F. ..... Clarendon, 24
Stone, Herd E., Jr. ..... Holly Grove, 2271
Walker, Walter L. ..... Brinkley, 302
Williams, J. P., Jr. ..... Brinkley, 278

NEVADA COUNTY

Arnold, C. P. ..... Wichita, Kansas
Cox, James E. ..... Rosston, 2251
Hairston, Glenn G. ..... Prescott, TU 7-2211
Harrell, L. J. ..... Prescott, TU 7-2312
Hesterly, Charles A. ..... Prescott, TU 7-2012
Hesterly, Jacob B. ..... Prescott, TU 7-2012
*Hirst, Ottis G. ..... Prescott
Pool, Wm. B. H. ..... Bodcaw, TU 9-2236

OUACHITA COUNTY

Burnell, Ernest L. ..... 621-A Adams Ave. S.E., Camden, TE 6-5753
Byrd, E. J. ..... 140 Van Buren St. N.W., Camden, TE 6-3200
Dalton, Perry J. ..... 415 Hospital Dr. S.W., Camden, TE 6-5013
Dedman, J. L., Jr. ..... 415 Hospital Dr. S.W., Camden, TE 6-5013
Drewery, L. E. ..... 222 Van Buren St. N.W., Camden, TE 6-5058
Ellis, Wm. B. ..... Stephens, ST 6-2551
Gossett, C. E. ..... U. S. Navy
Guthrie, James ..... 222 Van Buren St., N.W., Camden, TE 6-5058
Hawley, James W. ..... 140 Van Buren St., S.W., Camden, TE 6-5710
Haynie, Wm. H. ..... Shreveport, Louisiana
Hearnsberger, Henry ..... Stephens, ST 6-2811
Jameson, John B., Jr. ..... 110 Harrison S.W., Camden, TE 6-5088
Lewis, R. C. ..... 623 A Adams S.E., Camden, TE 6-5753
McAlister, John P. ..... Box 176, Camden, TE 6-2350
Meek, Tom J. ..... 415 Hospital Dr. S.W., Camden, TE 6-5013
Miller, John H. ..... 109 Adams Dr. S.E., Camden, TE 6-2890
Ozment, L. V. ..... 110 Harrison Ave. S.W., Camden, TE 6-5088
Partee, Norf G. ..... 223 Jefferson S.W., Camden, TE 6-2339
Pruitt, Willard H. ..... 415 Hospital Dr. S.W., Camden, TE 6-5013
Rhine, T. E. ..... Thornton, 520-J2
Robins, R. B. ..... 140 Van Buren S.W., Camden, TE 6-3200
Robins, Rowland R. ..... 105 A Adams N.E., Camden, TE 6-2328
Thompson, John P. ..... Bearden, 58

PHILLIPS COUNTY

Barrow, John H. ..... Helena, HI 4-2622
Bell, L. J., Pat ..... Helena, HI 4-2163
Berger, A. A. ..... Helena, HI 4-2781
Butts, James W. ..... Helena, HI 4-2006
Capes, Bernard ..... West Helena, JU 5-2621
Chrestman, R. L., Jr. ..... Helena, HI 4-3294
Connolly, Wm. B. ..... Helena, HI 4-3791
Ellis, Wm. A., Jr ..... Helena, HI 4-3037
Faulkner, Henry N. ..... Helena, HI 4-7401
Gibbons, G. E. ..... Marvell, 3721
Hiatt, Wood C. ..... Elaine, VA 7-2265
Jones, Lynwood B. ..... Helena, JU 5-2623
Kirkman, C. M. T. ..... Helena, HI 4-2712
Kultgen, Edward ..... Elaine, VA 7-3675
McCarty, C. P. ..... Helena, HI 4-7401
Oldham, H. B. ..... West Helena, JU 5-7581
Paine, W. T. ..... Helena, HI 4-7401
Wise, James E., Jr. ..... Marvell

POLK COUNTY

Campbell, C. A. ..... Mena, 1185
Hefner, David P. ..... Mena, 44
Lee, F. A. ..... Vandervoort, 21
Norwood, Frank A. ..... address Unknown
Redman, Pierre ..... Mena, 77
Rogers, Henry N. ..... Mena, 44
Stewart, G. T. ..... Mt. Ida
Wood, John P. ..... Mena, 164

POPE-YELL COUNTY

Cale, Walter ..... Atkins, B4
Draeger, Louis A. ..... Danville, HY 5-2252
Gardner, Ellis ..... Russellville, WO 7-2242
Gardner, Lycurgus ..... Russellville, WO 7-2242
Harris, Walter P. ..... Danville, HY 5-2714
Henry, J. A. ..... Russellville, WO 7-2345
King, Wm. Ernest, Jr. ..... Russellville, WO 7-2345
Lane, Walter H., Jr. ..... Dover, AC B-3305
Linton, Arthur C. ..... Hector, BU 4-3011
Lowrey, Douglas H. ..... Russellville, WO 7-2156
Martin, Damon G. H. ..... Danville, HY 5-2803
Millard, Roy I. ..... Russellville, WO 7-2345
Mobley, Max James ..... Russellville, WO 7-2242
Stanford, John M. ..... Russellville, WO 7-4386
Tate, Alvie B. ..... Russellville, WO 7-3600
Teeter, Brooks R. ..... Russellville, WO 7-2345
Underwood, E. O. ..... Waveland
Webb, Lewis A. ..... Dardanelle, CA 9-3329
Wilkins, Charles F., Jr. ..... Russellville, WO 7-2345
Williams, David M. ..... Russellville, WO 7-2156

PULASKI COUNTY

Abbott, Wm. Wood ..... 1700 W. 13, Little Rock, MO 6-2471
Adametz, J. H. ..... Donaghey Bldg., Little Rock, FR 5-5547
Agar, Drew F. ..... Donaghey Bldg., Little Rock, FR 5-2337
Alford, Dale ..... Meers Bldg., Little Rock, FR 5-0111
Allen, Hoyt R. ..... Donaghey Bldg., Little Rock, FR 2-5518
Almaden, Philip J. ..... 300 E. Roosevelt, Little Rock, FR 4-3331
Armstrong, Howard M. ..... 12th and Bishop, Little Rock, FR 2-5626
Atkinson, Shelby ..... 3833 Lockridge, North Little Rock, SK 3-4262
Ault, C. C. ..... VA Hospital, North Little Rock, FR 4-4371
Autry, Daniel H. ..... Donaghey Bldg., Little Rock, FR 6-1313
Baber, John C., Jr. ..... Donaghey Bldg., Little Rock, FR 5-1268
Bailey, H. A. Ted, Jr. ..... 1610 West 3rd, Little Rock, FR 2-1811
Barker, James ..... Donaghey Bldg., Little Rock, FR 5-6478
Barnhard, Fay Miller ..... Philadelphia, Pennsylvania
Barnhard, Howard J. ..... 3006 N. Taylor, Little Rock, MO 3-0277
Bauer, Frank M. ..... 6th & Pulaski Sts., Little Rock, FR 5-8652
Bennett, B. A. ..... State Hospital, Little Rock, MO 3-4123
Betts, Charles S. ..... Little Rock, MO 6-9461
Beverly, Nolan F. ..... 7320 Laurel Road, Little Rock, LO 5-2027
Bizzell, Ross ..... Exchange Bldg., Little Rock, FR 6-2309
Black, Hal R., Jr. ..... Donaghey Bldg., Little Rock, FR 2-7265
Black, H. Thurston ..... Donaghey Bldg., Little Rock, FR 5-5292
Black, Millard W. ..... 705 North Ash, Little Rock, MO 3-5413
Blakely, R. M. ..... 106 E. Capitol, Little Rock, FR 2-1554
Blalack, Edwin E. ..... 5701 W. 29, Little Rock, MO 4-3788
Bradburn, Curry B., Jr. ..... Donaghey Bldg., Little Rock, FR 2-6300
Briggs, B. P. ..... 1417 West 6th, Little Rock, FR 5-8206
Brinkley, Roy A. ..... 1120 Marshall, Little Rock, FR 5-1177
Brizzolara, A. J. ..... Donaghey Bldg., Little Rock, FR 2-6881
Brooksher, W. R., Jr. ..... 318 Keightly Drive, Little Rock, MO 6-2951
Brothers, Duane E. ..... Tulsa, Oklahoma
Brown, H. L. ..... 1905 Gaines, North Little Rock, FR 4-4692
Brown, Martha M. ..... State Hospital, Little Rock, MO 3-4123
Brown, T. Duel ..... 1120 Marshall, Little Rock, FR 4-1985
Brown, Willis E. ..... Medical Center, Little Rock, MO 6-9461
Browne, Hugh A. ..... Alexander, CO 2356
Buchanan, F. R. ..... Donaghey Bldg., Little Rock, FR 4-5343
Buchman, Joseph A. ..... 1218 West 6th, Little Rock, FR 5-6444
Burgess, T. E. ..... 521½ Main, Little Rock, FR 2-2733
Busby, John V. ..... 500B Kavanaugh, Little Rock, MO 6-0607
Byrd, Lucas M., Jr. ..... 36 Lake Shore Drive, Little Rock, MO 6-5831
Calcote, Robert A. ..... Donaghey Bldg., Little Rock, FR 4-5969
Calhoun, Joseph D. ..... 5804 W. Markham, Little Rock, FR 6-1321
Carnahan, Robert G. ..... State Hospital, Little Rock, MO 3-4123
Carruthers, F. Walter ..... Donaghey Bldg., Little Rock, FR 5-3372
Cashion, E. L., Jr. ..... Waldon Bldg., Little Rock, FR 5-5866
Cazort, Alan G. ..... 4001 West Capitol, Little Rock, MO 4-1596
Chappell, Ewin S. ..... Memphis, Tennessee
Cheairs, D. B. ..... 721 West 2nd Street, Little Rock, FR 4-2272
Chesnutt, C. R., Sr. ..... Boyle Bldg., Little Rock, FR 2-7536
Choate, Hoyt L. ..... 1120 Marshall, Little Rock, FR 2-7032
Christeson, Wm. W. ..... Donaghey Bldg., Little Rock, FR 6-2409
Christian, John D. ..... Donaghey Bldg., Little Rock, FR 5-0618
Chudy, Amail ..... 1703 Main, North Little Rock, FR 4-0616
Church, B. L. ..... 321 Maple, North Little Rock, FR 4-7796
Clark, A. C. ..... Donaghey Bldg., Little Rock, FR 2-7631
Clark, William A. ..... Donaghey Bldg., Little Rock, FR 5-7228
Cohen, Louis A. ..... 8 Amarillo Circle, Little Rock, MO 3-7542
Compton, John Nye ..... Donaghey Bldg., Little Rock, FR 4-4636
Cook, Raymond C. ..... 601 Scott, Little Rock, FR 5-8273
Cooper, William G. ..... Donaghey Bldg., Little Rock, FR 4-6496
Cope, Ellis P ..... Donaghey Bldg., Little Rock, FR 4-8884
Cosgrove, K. W. ..... 516 Scott, Little Rock, FR 4-6338
Craig, Marion S., Jr. ..... Waldon Bldg., Little Rock, FR 5-2395
Crawley, Eugene H. ..... 5514 W. Markham, Little Rock, FR 5-8295
Cross, J. B. ..... 1120 Marshall, Little Rock, FR 5-0156
Crow, Jan W. ..... 1000 W. Main, Jacksonville, FR 5-4182
Cull, S. T. W. ..... 902 W. 2nd, Little Rock, FR 5-8073
Cullen, Phillip T. ..... Donaghey Bldg., Little Rock, FR 4-1641
Cummins, Bryce ..... 31 Broadmoor Drive, Little Rock, MO 6-7773
*Darnall, Rolland F. ..... Little Rock
Davis, Malcolm W. ..... VA Hospital, Little Rock, FR 2-8361
Dean, Gilbert O. ..... Donaghey Bldg., Little Rock, FR 5-7784
Dildy, Hal ..... Donaghey Bldg., Little Rock, FR 5-0244
Dillaha, Calvin J. ..... Waldon Bldg., Little Rock, FR 6-1361
Diner, Wilma J. C. ..... Medical Center, Little Rock, MO 6-9461
Dishongh, Howard A. ..... Donaghey Bldg., Little Rock, FR 5-4436
Dodge, Eva F. ..... Medical Center, Little Rock, MO 6-9461
Donaldson, J. K. ..... 101 West 24th, Little Rock, FR 2-7546
Downs, J. W. ..... 4316 W. Markham, Little Rock, MO 6-5922
Durham, James W. ..... Box 406, Jacksonville, FR 5-6771
Easley, Edgar J. ..... State Health Dept., Little Rock, FR 4-6361
Ebert, Richard V. ..... Medical Center, Little Rock, MO 6-9461
Egner, Kathleen E. ..... 801 W. 16th, Texarkana, 32-9353
Ellis, Philip P. ..... Medical Center, Little Rock, MO 6-9461
Eubanks, R. M. ..... 12th and Bishop, Little Rock, FR 2-5626
Farris, Guy R. ..... 810 West 2nd, Little Rock, FR 2-2281
Fein, Norman N. ..... Waldon Bldg., Little Rock, FR 4-8441
Fletcher, Elizabeth D. ..... Donaghey Bldg., Little Rock, FR 5-4436
Foster, Julian L. ..... 1811 Main, Little Rock, FR 2-2392
Fulmer, H. Ray ..... Donaghey Bldg., Little Rock, FR 5-9085
Fulmer, John M. ..... 1610 West 3rd, Little Rock, FR 5-6042
Fulmer, Paul M. ..... Donaghey Bldg., Little Rock, FR 4-4636
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8urton, George C. ....427 W. Oak, El Dorado, UN 3-9173
Cathey, A. D. ....112 W. Peach, El Dorado, UN 3-4127
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PAIR PRODUCTION: Pair Production is a more complicated process and more difficult to realize in terms of a physical model. This process occurs only at very high energies and photons with energies below 1.02 Mev. cannot even initiate this process. Above 1.02 Mev. it increases in probability almost directly proportional to the incident photon energies up to 10 Mev. This probability of interaction is dependent upon the atomic number of the target material but increases only as the second power of Z (4). Thus it is more dependent upon Z than the Compton process but much less so than is the photoelectric effect. In tissue, this process does not become important until photon energies of nearly 50 Mev. and above are reached when it begins to equal the Compton process. This process is schematically shown in Fig. II. A high energy photon, while in the vicinity of the strong coulombic field immediately surrounding the atomic nucleus, is transformed into 2 particles. One of these is identical to the omnipresent negatively charged electron and ionizes and excites as does the Compton and photoelectric electron. The second is a strange, positively charged particle which is a mirror image of the electron. It belongs to that group of particles which has recently been described as "anti-matter." This particle is called a positron. It is short lived but for a few milli-seconds it speeds through matter and ionizes other atoms as is described for the negative electron. Upon loss of most of its kinetic energy, however, it combines with a neighboring negative electron and annihilation of both particles occurs, and in their place are 2 photons of equal energy of at least 0.51 Mev. each. Again the end result is ionization and excitation of the target material atoms.

Other less important processes are also involved in this transferral of photon energy to matter; however, in each case the result is that of ionization and excitation and from these two basic processes one must attempt to explain the processes by which the end results of radiation damage as seen in the laboratory and clinic are brought about.

Although the physical processes are fairly well understood and the final results expressed by the biologic system irradiated are observable, the intermediate steps from ionization and excitation to observable damage are not so well defined. Many theories are propounded with incomplete agreement as to significant details. Only some of the more widely accepted thoughts will be qualitatively considered here.

Basically, cellular damage is the process which is accountable for all of the manifestations of injury expressed by an animal. Ionization and excitation must somehow, therefore, be responsible for cellular damage. The number of ionizations which are necessary to result in cellular death is a critical parameter but is not well documented. Certainly various portions of the cell have widely different sensitivity as related to cellular death. Cytoplasmic irradiation requires thousands of times as much radiation dose as does the cell nucleus to produce cellular death. The chromatin or genetic material within the nucleus has been shown by microbeam radiation processes to be the sensitive portion (5). Actual cell death probably occurs as the result of breakdown of enzymatic systems normally under the control of this genetic material, although there is also some evidence that direct damage to enzyme systems may also be, at least partially, responsible.

Data has been obtained which show that cellular death observed at various total radiation doses can be explained statistically only by assuming that critical cell damage does not result until multiple hits by photons upon a sensitive point have occurred. This is known as the multiple hit theory and is opposed to the single hit theory which assumes only a single hit upon a sensitive area is sufficient. Data is available to support both theories, and the answer probably lies somewhere in between. Cell type and especially the chromosomal arrangement of the cell are strongly related to which theory appears most likely. A cell that is damaged by radiation so that it is no longer capable of reproducing itself is effectively dead. However, this inability to reproduce may not be apparent by usual microscopic examination of fixed sections from irradiated tissue and may therefore result in erroneous observations and confusing data.

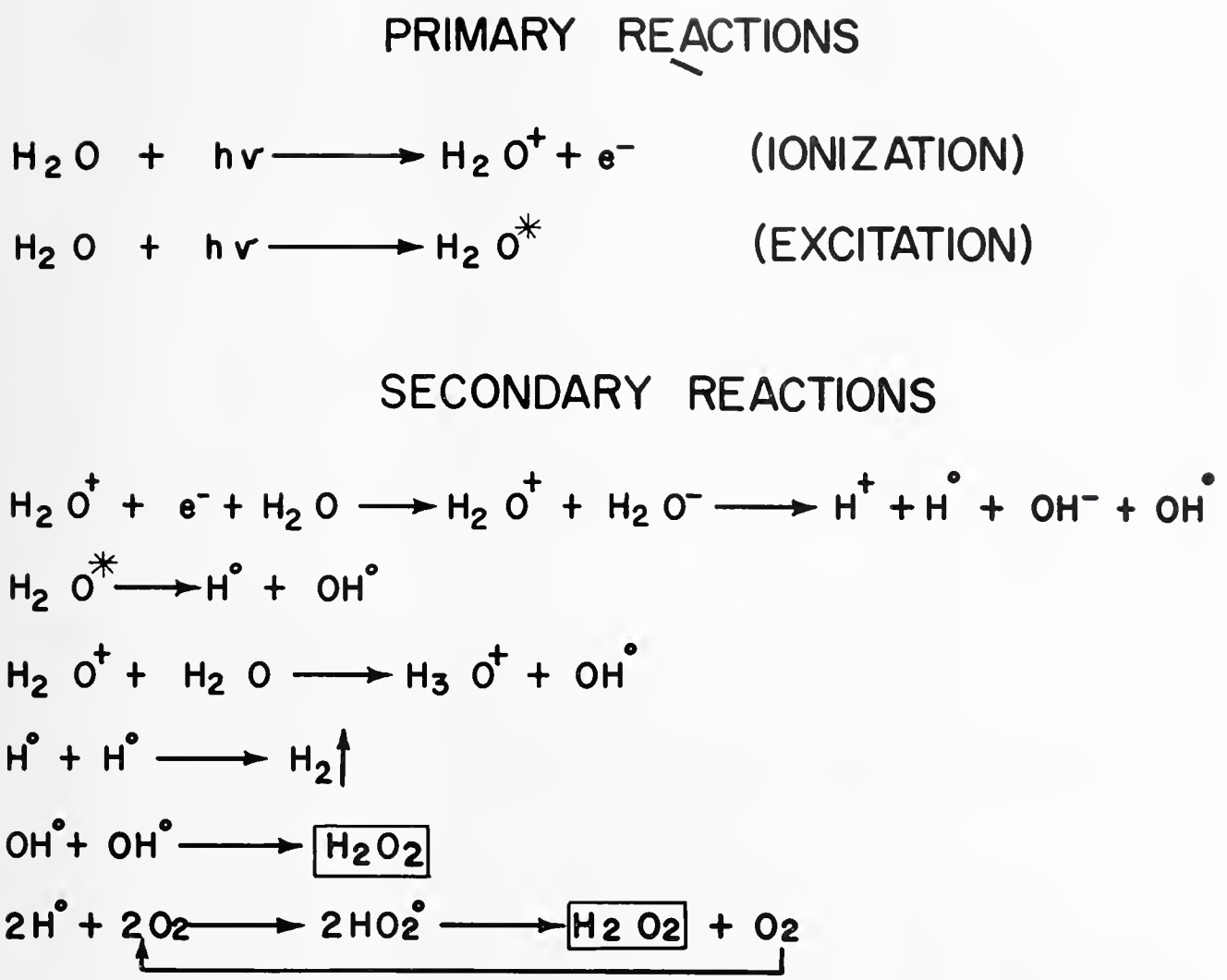


FIGURE IV
Basic Chemical Reactions Involved in the "Peroxide" Theory

It has been repeatedly shown that irradiation of tissue in the presence of excess oxygen results in greater damage than would normally be expected. This result is one of the bases for the so-called "peroxide theory" of radiation damage. This theory states, in effect, that certain cellular poisons (peroxides) are formed which in turn cause cellular damage. The basic theory can best be explained in following certain reactions initiated by the action of radiation upon water (Fig. IV). Since water comprises a major part of tissue these reactions may be the only, or at least the most important, ones. However, many believe and have supporting data that other molecules containing loosely bound hydrogen and hydroxyl groups may be just as important.

Certain genetic effects almost certainly follow direct chromosomal breakage or genetic deformations due to ionizing events. The resultant chromosomal or gene aberration may propagate itself, if the deformation is not incompatible with cellular viability. The resultant tissue may be quite unlike its normal counterpart and, if certain environmental modifications can be maintained, may develop into a malignant neoplasm. On the other hand, aberrations in germ cells may propagate themselves and be passed on to the offspring. If the deformation is compatible with life, the offspring may in turn propagate the mutation to his offspring. Thus there may be built up in the general population a pool of mutations which are themselves non-lethal, but may in combinations result in lethality or decreased vitality.

The somatic effects of radiation (with the exception of carcinogenesis) are reparable and accumulate in a complicated

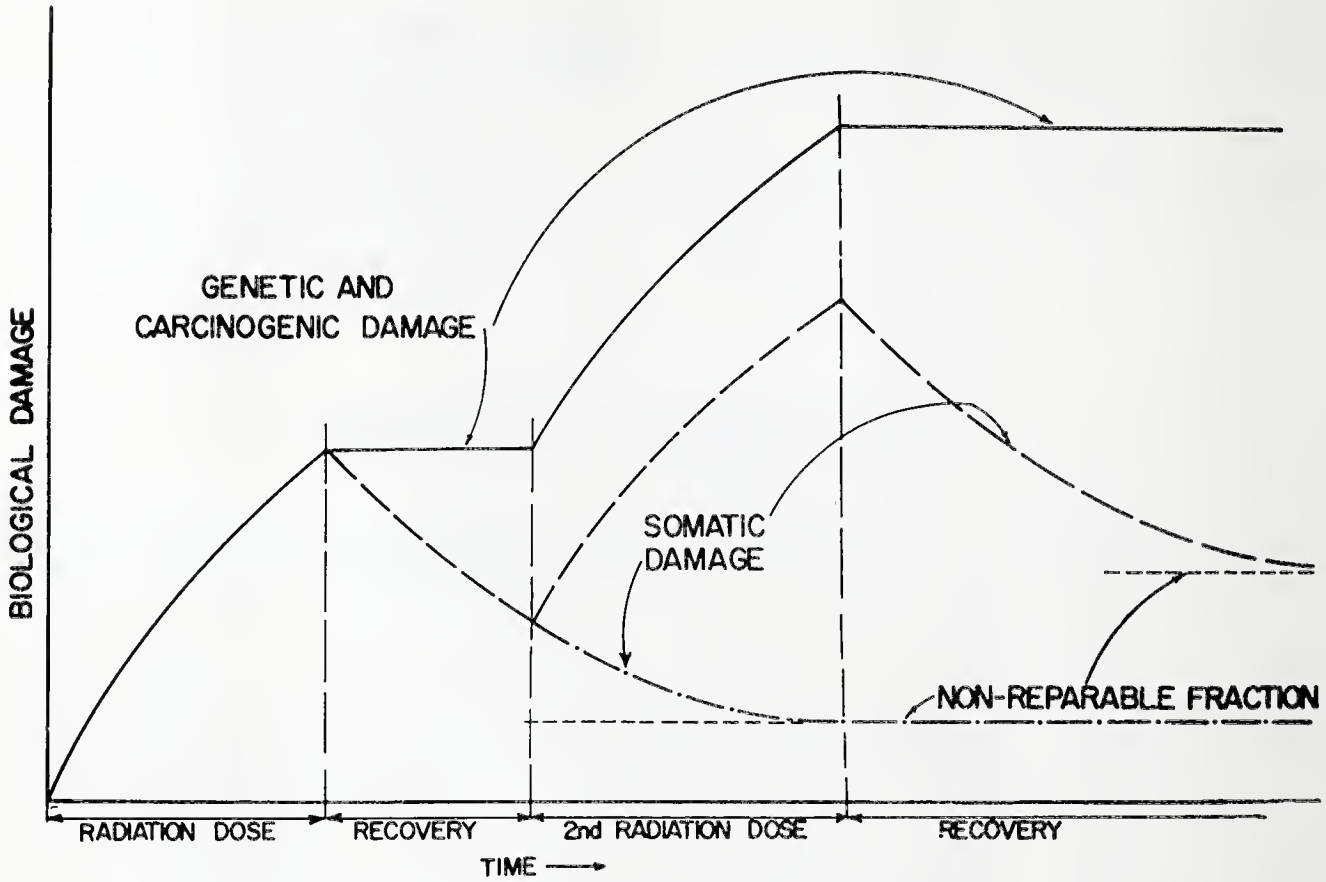


FIGURE V

Accumulation of Biological Damage as a Function of Time

non-linear manner resulting in a sigmoid type curve suggesting a partially exponential relationship. The genetic and carcinogenic effects, on the other hand, accumulate linearly and are non-reparable. Thus, 100 RADs* may result in somatic damage equivalent to only 1 RAD a year later, however, the genetic and carcinogenic effects remain indefinitely at 100 RADs. (See Fig. V) The rate of repair of somatic damage is not yet well established. It appears to follow a decreasing exponential relationship in opposition to the increase one sees in accumulation of damage. (Fig. V) A certain portion of the somatic damage is probably never repaired, and this remaining non-reparable portion results in an effective shortening of the animal's normal life span as observed in animal studies.[6] Thus, in spite of an ability to recover almost completely from somatic radiation damage, a certain fraction accumulates steadily and linearly and may be expressed as an ultimate shortening of the expected life span in the case of an irradiated animal.[9]

*1 RAD=100 Ergs of energy absorbed per gm. of material.

The clinical manifestations of radiation damage have been discussed elsewhere and will not be repeated here.

Newer techniques and interest have considerably expanded the possibilities in this field of biological research and one feels confident that within the span of the next decade or quarter century the above discussed concepts will be developed to a much higher degree of reliability, both quantitatively and qualitatively.

SUMMARY

1. The effects of X and gamma radiation upon man has been observed for the past 65 years.
2. The three physical processes believed to be primarily responsible for the transfer of energy from X and gamma radiation to the atoms of the target material are:
   (1) The photoelectric effect
   (2) Compton scatter
   (3) Pair Production

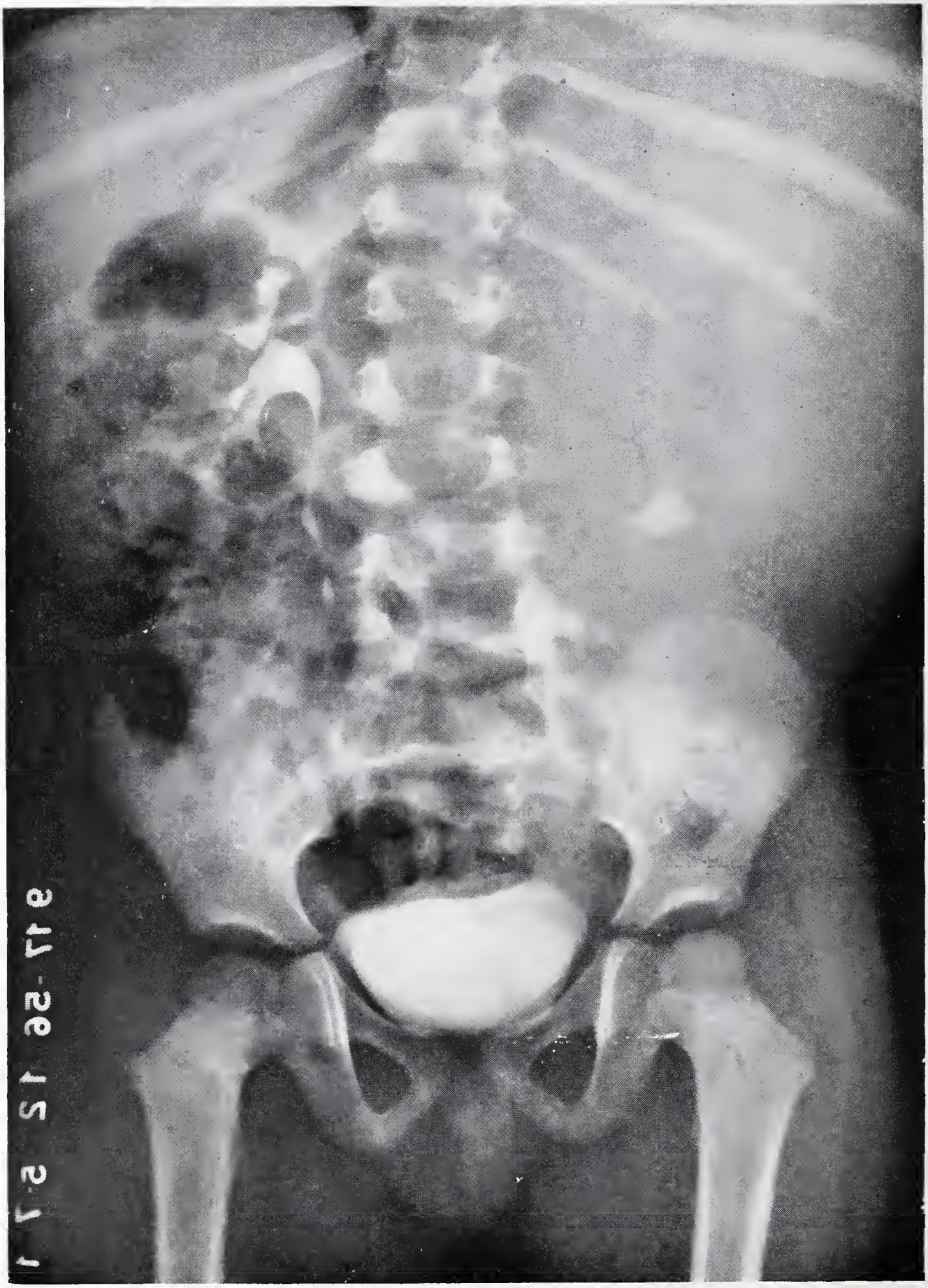
   These processes are briefly described and discussed.

3. The common result of these three processes are ionization and/or excitation of the atoms of the target material.
4. The intermediate steps involved between the physical transfer of energy and the observed biological effects are not completely understood. Some of the current theories are briefly presented.
5. Genetic and carcinogenic damage is seen to be linearly cumulative and nonreparable whereas somatic changes (effective cellular death) is seen to be reparative and as a result does not accumulate in a linear manner.

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What Is Your Diagnosis?



FOR ANSWER SEE PAGE 288

Arkansas Public Health at a Glance

Accidental Deaths of Children

Almost half of the 628 reported deaths of children (ages 1-19 years) in Arkansas in 1958 were caused by accidents. Since 1900, accidents have ranked among the leading causes of deaths of American children, and for the past three decades they have been the leading cause. At present, accidents rank as the leading cause of death for the age group 1-35 years.

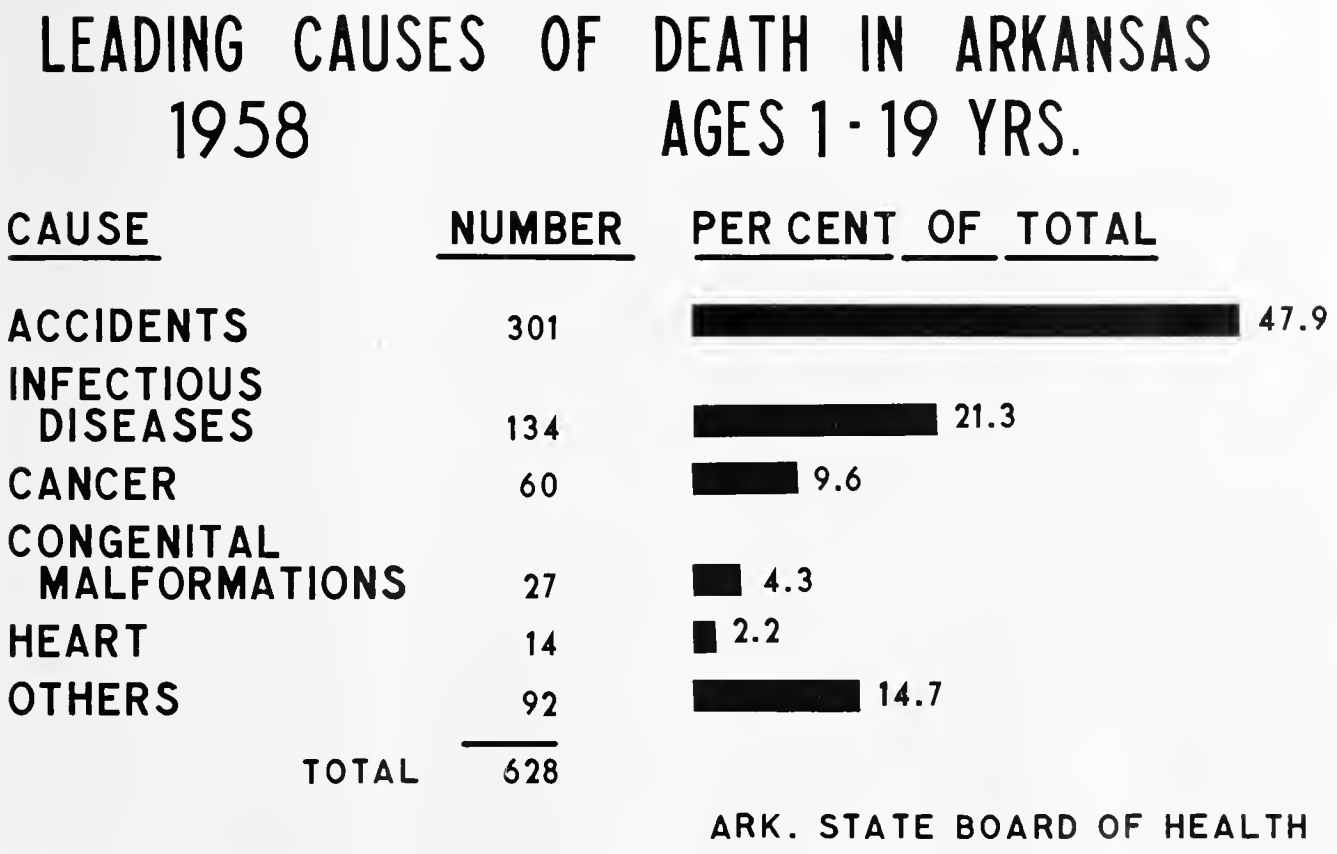
Table 1 below lists the leading causes of death among children in Arkansas in 1958. Table 2 lists the leading causes of accidental deaths of children in Arkansas during the same period.

Of the 115 motor vehicle deaths, 35 were reported in the age group 1-4 years. Of those 35, 22 were reported as having been three-year-olds who were involved both as passengers and pedestrians. This fact emphasizes the need for closer adult supervision of children in this age group. Driver education for teen-agers is also an obvious need, since 51 of the 115 deaths were in the age group 15-19 years.

Of the 77 deaths caused by fire, 53 involved children in the 1-4 year age group and all were reported as having occurred in or around the home. Elimination of fire hazards and hazardous practices in homes could reduce this number.

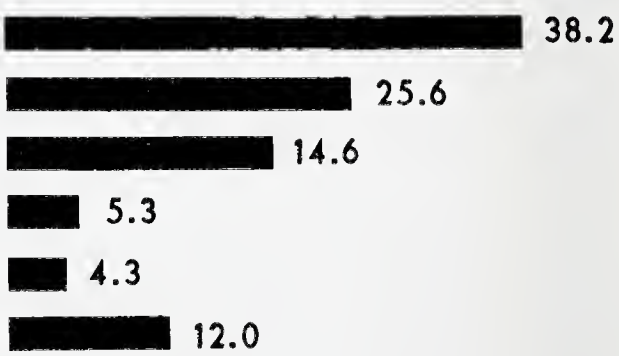
Most of the 44 deaths from drowning were reported as having occurred in unprotected places, such as stock ponds, streams, and lakes. The importance of teaching children how to swim at an early age cannot be overemphasized.

The State Board of Health has on its staff a full-time Child Safety Consultant who is available to assist in the planning of community child safety programs.



CAUSES OF ACCIDENTAL DEATH IN ARKANSAS 1958 AGES 1-19 YRS.

CAUSE	NUMBER	PER CENT OF TOTAL
MOTOR VEHICLES	115	38.2
FIRE	77	25.6
DROWNING	44	14.6
FIREARMS	16	5.3
POISONS	13	4.3
OTHERS	36	12.0
TOTAL	301	



ARK. STATE BOARD OF HEALTH

Editorial

The Service Contract — A Reflection On the Doctor

Frank G. Kumpuris, M.D.

Being presented to the Arkansas State Medical Society for consideration by the Arkansas Medical and Hospital Services, Inc., that is the Blue Cross and Blue Shield, is the Comprehensive Service Contract. This is a very elaborate contract, well conceived with numerous extra benefits such as payment for outpatient x-ray services, increased hospital benefits, and to say the least, increased surgical benefits, in direct proportion to the type of service contract. Also, payment per hospital visits for the doctor ranging from $4.00 per day up to $5.00 per day dependent again on the type of service contract. This is truly a magnificent contract and would be wonderful if it were an "indemnity contract", or in other words, a contract such as those which are issued at present.

Unfortunately it is a "service contract". What does "service contract" mean? In simple terms it means the following: There are three contracts to be sold to the public according to the income level of the family. The purchase of these contracts by the patient assures him not only of the hospital benefits which are listed in the contract, but guarantees him (the policyholder) that the doctor will not charge him any more than the amount listed in the contract. Furthermore, if the patient is found by the physician to have falsified his income, thereby getting his policy at a reduced rate, then the contract is broken and the physician may enter a charge of his own.

The argument presented to the physicians for such a plan is to enable the Blue Cross-Blue Shield to combat the "quote: threat of socialized medicine". Another argument given by an official of Blue Cross-Blue Shield, is to allow the Arkansas Medical and Hospital Services, Inc., to have an extraordinary contract which competitors do not have to offer to the public, thereby giving them an advantage of competition over private insurance companies. Arkansas has been an excellent state insofar as its medical relationships of the physician and the patient. Certainly one will occasionally hear of an excessive fee, but by and large the consideration of the patient has been foremost in the minds of most physicians of this state. For this plan to be offered for consideration to the physicians of this state is actually an insult to the fine job which the physicians are doing both in their relationship with the patient and for the fine calibre of medicine practiced here in Arkansas.

To sacrifice the privileges of private practice is to yield to socialization and in this case the socialization is by an insurance company founded in part by the Medical Society. For a medical society to consider such a "service contract" is to imply that its members have been charging astronomical fees, and that they are not capable of carrying on with sincerity and conscience the leveling of fair fees to the patients of this state. It is sincerely hoped that each member of this medical society will continue to strongly reject the "service contract" offered by the Arkansas Medical and Hospital Services, Inc., or any other organization. An Indemnity Contract would be welcome. A service contract tends to make the physician the tool of the company with all its unwelcome implications. Let's continue to reject "service contracts."

MEDICINE IN THE NEWS

FEDERAL EMPLOYEES HEALTH INSURANCE — S. 2162, a bill to establish a voluntary contributory health insurance program for Federal employees was signed into law by the President on September 28th. It is now known as Public Law 86-382. Under this program which will go into effect July 1, 1960, the Federal employees and the government will share equally in the cost.

Some of the more important provisions which were added to the final version of the bill are discussed below.

(1) Employees who receive compensation for an illness or injury under the Federal Employees Compensation Act are eligible for health insurance if the injury occurred after September 28, 1959. Under earlier versions of the bill, they would not have been eligible unless the illness or injury occurred after July 1, 1960.

(2) Under certain conditions, indemnity plans may qualify under the Program. It is believed that this section may provide an answer to the problem pointed out in the A.M.A.'s position — that under the first version of the bill — Blue Cross and Blue Shield would apparently not qualify.

(3) Both the government and the Federal employees are required to make equal contributions toward the administrative costs and reserves for each plan.

AIR POLLUTION CONTROL LAW — On September 22nd the President signed H. R. 7476, a bill which provides for a four-year extension of the air pollution control program. It is now known as Public Law 86-365.

OMNIBUS HOUSING BILL—S. 2654, the Omnibus Housing Bill, was signed by the President on September 23rd. This third housing bill which is now Public Law 86-372 includes the same provisions for mortgage insurance for proprietary nursing homes as were contained in S. 57 and S. 2539, the vetoed housing bills.

RADIATION HAZARDS — Public Law 86-373 which authorizes the Atomic Energy Commission to transfer certain regulatory authority to the states by agreement was signed by the President on September 23rd. This law was formerly S. 2568.

What's Happening to Our Medical School Applicants?

(From the Association of American Medical Colleges)

The total number of medical school applicants seems to be decreasing in the face of increasing enrolments and increasing graduates from colleges:

Year	Total Students Enrolled in Colleges	Total No. Graduating	Total No. Med. School Applicants	No. Medical School Applicants Represented as Percentage of College Graduates
1950	2,296,592	433,734	22,279	5.1
1957	3,068,417	340,347	15,791	4.6
1958	3,258,556	365,748	15,172	4.1

The percentage of students entering medical schools with an average grade of A has been decreasing:

College-Grade Average First-Year Medical Students	1950-1951 (per cent)	1957-1958 (per cent)
3.6-4.0 (A)	40	18
2.6-3.5 (B)	43	66
1.0-2.5 (C)	17	16

There are also some disturbing trends in the MCAT scores as reported by the research division in the applicant study appearing in the April issue of the **Journal of Medical Education**, ". . . scores of all first-time applicants for each of the years 1952-57, clearly show that a decline in quantitative aptitude and scientific skills as measured by MCAT has occurred, accompanied by a rise in verbal aptitude." However, preliminary studies of the 1958-59 freshman class showed significant increases in both quantitative and science scores, and the average scores for applicants to the 1959-60 class are showing similar trends.

The percentage of students withdrawing during their freshman year in medical schools increased from 5.5 per cent in

Year	Total Enrolled in First-Year Class	Number Withdrawing	Percentage Withdrawing	Students Available for Second-Year Class
1954-55	7,576	418	5.5	7,158
1955-56	7,686	480	6.2	7,206
1956-57	8,014	544	6.8	7,470
1957-58	8,030	629	7.8	7,401

1954-55 to 7.8 per cent in 1957-58. Actually, fewer students were available for the second-year class from the 1957-58 class than from the 1956-57 class.

The number of students withdrawing, both in poor and in good standing, increased steadily since 1954:

Year	Poor Standing		Good Standing	
	No.	Per Cent	No.	Per Cent
1954-55	257	3.4	161	2.1
1955-56	324	4.2	156	2.0
1956-57	368	4.6	176	2.2
1957-58	448	5.6	181	2.3

Sampling of Academic Deficits

Budgeted academic vacancies in the United States medical schools have shown an alarming increase in recent years. For instance, budgeted vacancies in 1957-58 were almost twice the number reported for 1956-57 — 331 as contrasted with 619.

More startling, however, were the results of a sample questionnaire relative to the number of additional faculty needed, over and above vacant budgeted positions, to teach medicine as it should be taught today. Twenty schools (12 tax supported and eight private) reported an average need of 50 additional faculty members — 43 junior and senior faculty members in traditional departments and six or seven faculty members in the so-called "new disciplines"; *i.e.*, physical medicine and rehabilitation, biophysics, biostatistics, psychology, etc., as well as 80 additional supporting personnel per school, such as the administrators, clerks, and technicians. Converted to dollars on the basis of prevailing average salaries, approximately $500,000 per school would be needed to hire these people. This is to be compared with a dollar need of $250,000 per school reported by A.A.M.C. in 1953 (*J. M. Educ.*, February, 1953, by Dr. Ward Darley) to correct academic deficits. Considering the change in demands on schools and problems resulting from increased research, etc., this jump to $500,000 per school may be a reasonable estimate.

Medical School Construction Needs

In answer to a recent A.A.M.C. questionnaire, the deans of 78 fully-developed four-year United States medical schools reported that a total of $1,230,774,000 has been spent since 1948 on the construction of teaching, research and hospital facilities. Of this total, $693,774,000 was spent for facilities on which no federal funds were expended and $537 million on facilities which included $133.5 million in federal funds in their total construction budgets.

The 78 deans also reported a need for approximately $293 million for new construction and/or renovation of teaching facilities. This does not include their estimates of construction needs for research facilities or hospitals.

If funds were available, 16 schools indicated that they could start immediate construction on facilities costing $41.5 million; 36 schools could begin construction estimated at $184.5 million by 1960; and by 1961 an additional 14 schools could begin construction estimated at $48 million. Of the remaining schools, seven indicated no immediate needs, and five could use $19 million between 1962 and 1966 for teaching facilities.

The deans estimated that 850 additional freshman medical students could be accepted by 1965 if funds were made available soon for this construction and renovation program.

In a recent AAMC survey, 78 fully developed four-year United States medical schools indicated a need for $757,200,000 in construction funds between now and 1965 for the building of new teaching, research, hospital, out-patient, and administrative facilities, as well as for the remodeling and renovation of existing plants.

The Month in Washington

Washington, D. C. — The U. S. Chamber of Commerce and two key Congressmen, all opponents of the so-called Forand bill, recently issued separate warnings that an all-out effort will be made to get the controversial legislation through Congress next year.

In its weekly report to members, the Chamber predicted there will be "a powerful attempt" in the next session of Congress to enact the bill (H.R. 4700) which would increase social security taxes to help pay for the cost of the Federal gov-

ernment providing surgical and hospital care for social security beneficiaries.

The Chamber warned that passage of the legislation would mark "a major break-through into the welfare state." It "probably would lead to a compulsory Federal program providing complete medical care for everyone," the Chamber said.

There would be "no stopping" of such a program once it got started, the report said.

The Chamber called upon communities to find orderly solutions to the problems of the aging. Otherwise, solutions "will surely be imposed from Washington," the report added.

Similar warnings were voiced by Reps. Richard M. Simpson (R., Pa.) and Thomas B. Curtis (R., Mo.), key members of the House Ways and Means Committee where the bill was put on the shelf last session.

Rep. Curtis urged that the medical profession and other leading opponents make a strong counter-drive in an all-out effort to block passage of the bill next session. Unless there is such action, he said he would have to "regretfully" predict that legislation along the lines of the pending bill probably will be enacted in 1960.

Rep. Simpson said that H.R. 4700, and similar legislation affecting the medical profession, "make it imperative that every doctor keep informed on legislative issues before Congress." He also urged that physicians "become patriotic political forces" by giving "their informed viewpoint" to lawmakers at all levels of government.

Rep. Simpson said it "is important" that opponents of H.R. 4700 develop "appropriate alternatives" to solve the health care needs of the aged.

He promised to continue to cooperate with the medical profession to guard "against the disastrous consequences of compulsory national health insurance.

"House Democratic Leader John McCormack of Massachusetts expressed hope that Congress next year will stamp final approval on another bill of particular interest to physicians. He praised the Keogh-Simpson bill (H.R. 10) as "meritorious legislation" and said it "should be enacted into law next year." The measure, which was passed by the House last spring but left hanging in the Senate Finance Committee, would provide income tax deferrals for self-employed persons setting aside money for private retirement plans.

A National Republican Committee on "Program and Progress" proposed a far-reaching health program to be carried out by the Federal government in partnership with states and local governments.

Its goals would include: enlarging the capacity of medical schools so that 3,000 more doctors could be graduated each year, providing more hospital and nursing home beds, and supplementing hospital facilities with clinics, day-care centers and more visiting nurses to care for patients in their own homes.

The progress of medical science would be furthered by continued Federal support for basic medical research. But such Federal support would be given under conditions to encourage maximum non-Federal spending on medical research and to prevent "too great a diversion . . . of doctors required for the equally urgent needs of teaching and medical practice." It was estimated that expenditure of $1 billion a year—equally divided between the Federal Government and non-Federal sources—would be required by 1965.

Other recommendations included: vigorous Federal support of preventive health programs, and expansion and greater flexibility of voluntary health insurance programs.

"A free people and a free medical profession can achieve these goals with the wise support of government, without bureaucratic restrictions or interference with the physician-patient relationship which has made American health services a model for the free world," the Republican Committee stated.

The Committee proposed a five-point "partnership" program: 1) short-term Federal aid for construction of medical school buildings, 2) changes in the present hospital construction program to encourage renovation and repair of outmoded hospitals, 3) Federal guarantees for mortgages to finance construction of private nursing homes on a basis assuring high standards of quality in construction and operation, 4) encouragement of construction of diagnostic and outpatient fa-

cilities in rural area and the building of mental health clinics, and 5) Federal aid to cities "in more effective planning and coordination of health services."

The American Academy of Physical Medicine and Rehabilitation is pleased to announce the election of the following officers for 1959-60: President, Clarence W. Dail, M.D., Los Angeles; President-Elect, Ray Piaskoski, M.D., Milwaukee; Vice-President, Robert W. Boyle, M.D., Milwaukee; Secretary, Harriet E. Gillette, M.D., Gainesville, Fla.; Treasurer, James W. Rae, Jr., M.D., Ann Arbor, Mich.; Executive Secretary, Dorothea C. Augustin, Chicago. Also elected to serve on the Board of Governors of the American Academy of Physical Medicine and Rehabilitation for a three-year term is Herman L. Rudolph, M.D. of Reading, Penn.

The World Medical Association Elects Officers

At its XIIIth General Assembly held in Montreal, Canada, on September 6-12, 1959, The World Medical Association elected its officers for 1959-60. Dr. Renaud Lemieux of Canada was elected President, and Dr. Paul Eckel of Germany was elected President-Elect.

American Academy of Pediatrics

Dr. William W. Belford of San Diego, California, took the gavel as 30th president of the American Academy of Pediatrics, international society dedicated to child health and welfare. Dr. George M. Whealey of New York City was elected vice-president by the 2,000 child specialists assembled at the Palmer House in Chicago on October 7 for their 28th scientific meeting.

ANNOUNCEMENTS

The Dallas Southern Clinical Society announces the Spring Clinical Conference will be held March 21-22-23, 1960 in Dallas.

Bahamas Conferences

The Second Bahamas Surgical Conference will be held at the British Colonial Hotel, Nassau, Bahamas, November 27 until December 17, 1959. The Ninth Bahamas Medical Conference will meet April 1 until April 14, 1960 at the British Colonial Hotel, Nassau, Bahamas.

Personals and News Items

Dr. Doug Lowery and Dr. David Williams have completed the move into their new 15-room clinic at Russellville.

Announcement is made of the election of Dr. James D. Mashburn to the Board of the McIlroy Bank of Fayetteville. He was elected at the September meeting of the Board.

A new member of the professional staff at the North Little Rock Division of the Consolidated VA Hospital is Dr. Harold B. Witten, recently appointed assistant director of professional services for education. Dr. Witten comes as a transferee from the VA Hospital, Oklahoma City, Oklahoma.

Dr. R. J. Haley, a prominent Paragould physician, announced his resignation from the staff of Community Methodist Hospital. He will maintain his office at 112 West Court Street.

Four doctors from Little Rock attended a two-day regional conference on cancer control at Lake Murray Lodge near Ardmore, Oklahoma. They are Dr. Bill D. Stewart, director, and Dr. K. M. Kreth, assistant director of the St. Vincent Infirmary Tumor Clinic, Dr. J. T. Herron, state health officer, and Dr. Edgar J. Easley, assistant state health officer.

Dr. J. E. Lytle recently opened an office in Batesville in the quarters formerly occupied by Dr. C. A. Churchill. Dr. Lytle, his wife and three children moved here from Mammoth Spring.

The Arkansas Tuberculosis Sanatorium observed its 50th anniversary on September 30. Following an introduction by Dr. James M. Kolb, president of the Arkansas Medical Society, Governor Faubus made the principal address.

A one-day seminar for eye doctors was held September 26th at the University Medical Center in Little Rock. Speakers were Dr. Alston Callahan of the University of Alabama and Dr. Albert Lemoine of the University of Kansas Medical Center.

Dr. A. D. Gullett, who has been on the staff of Mobley Clinic in Morrilton for the past three years, has accepted a position as general practitioner on the staff of the Arabian-American Oil Company at Dhuhran, Saudi, Arabia.

Dr. Paul Dudley White, a septuagenarian and one of the world's best known heart specialists, was guest speaker at a luncheon at Hotel Noble in Blytheville. About 50 doctors were present to hear this physician, speaking under the sponsorship of the Mississippi County Heart Association.

Dr. Lee Parker, Jr., has opened an office for the practice of General Medicine at McGehee. His office is located in the Wolff Building. Dr. Parker has been doing general practice in Dermott for the past two years.

Guest speaker at the Rotary Club of El Dorado was Dr. Ben N. Saltzman of Mountain Home. He is chairman of the committee on rural health of the Arkansas Medical Society.

Dr. Robert Hood, a member of the State Hospital staff since November of last year, has joined the medical staff of the Benton Unit.

Reviewing his experiences in Woodruff County, Dr. John W. Morris spoke to the McCrory Rotary Club. Dr. Morris, who will be 85 next February, has been, and still is, practicing medicine in Woodruff County since 1909.

Dr. Calvin J. Dillaha, Associate Professor of Clinical Medicine at the University of Arkansas School of Medicine, spoke on Griseofulvin and Dermatomycoses at the Symposium sponsored by the University of Miami in Miami, Florida, on October 26-27.

Dr. T. Duel Brown has been very active with his program of Hypnosis. He has addressed 6 organizations on this subject in the past two months.

Contributors to the American Medical Education Foundation from the State of Arkansas, September, 1959.

Dr. D. H. Lowrey, Russellville	$15.00
Dr. Friedman Sisco, Springdale	5.00
	$20.00

Proceedings of Societies

The Washington County Medical Assistants Society held its first meeting of the fall season September 10. Twenty-one members were present to hear Dr. Billy J. Puckett of Siloam Springs speak on Hypnosis. Dr. Stanley Applegate, Springdale, Dr. Davis Walker, Fayetteville; and Dr. Sid Arnold, Prairie Grove, advisors to the Medical Assistants were present at the meeting.

Three additional physicians have been appointed to the Committee on Liaison with the Vocational Rehabilitation Service. They are: Dr. J. P. Ward, Dr. Joseph Hickey, and Dr. Jerome Levy, all of Little Rock.

The Craighead-Poinsett County Medical Society met October 7th in Jonesboro with Dr. William Ogle of Memphis as guest speaker. He discussed "Neuro Surgical Aspects of Cerebral Vascular Disease". The First District Meeting was held in Paragould November 5th.

The joint annual meeting of the Pulaski County Medical Society and the Pulaski County Bar Association was held October 13 in the University Medical Center Auditorium. Dr. Richard Logue and

Dr. Robert Watson represented the Medical Society. Alston Jennings and Sidney McMath represented the bar.

The District Medical Society held it's meeting October 6 in Camden. Dr. Morton Fuchs, physician in charge of diuretic research at the Hahnemann Medical College and Hospital, Philadelphia, Pa., was the featured speaker.

A reception honoring the Honorable Wilbur D. Mills and Mrs. Mills was held October 25, at the Batesville Country Club, sponsored by the 2nd District Medical Society.

New Members . . .

Dr. Avron A. Slutsky is a new member of the Craighead-Poinsett County Medical Society. He is a native of Tennessee and was graduated from the University of Tennessee Medical School at Memphis in 1958. Dr. Slutsky is a general practitioner with his office in Marked Tree.

A new member of the Craighead-Poinsett County Medical Society is **Dr. Henry B. Grochau.** He is a native of Huntsville, Alabama, and received his preliminary education in Tennessee and his M.D. degree from the University of Tennessee College of Medicine in 1958. Dr. Grochau is a general practitioner with his office in Marked Tree.

Dr. Carl B. Arnold of Salem has been accepted for membership in the Independence County Medical Society. Dr. Arnold is a native of Old Joe, Arkansas, and received his preliminary education at the University of Arkansas in Fayetteville. His M.D. degree was obtained at the University of Arkansas School of Medicine in June 1958. He finished his internship, July 1959 at the Arkansas Baptist Hospital.

TUBERCULOSIS ABSTRACTS

Sponsored by
The Arkansas Tuberculosis Association

In a current series of medical progress reports the author takes a long look at the present situation in tuberculosis therapy and control. His summary reprinted here is also a forecast of the future course of this ancient disease in our society.

A look at the future may perhaps best summarize the important aspects of tuberculosis and its treatment, giving a slant to the trends of tuberculosis control and eradication.

There is reason to believe that the recent precipitous downward trend in the mortality of tuberculosis will slacken in the years ahead and that the incidence of new cases will continue to be significant as long as the large community reservoir of tuberculosis of uncertain activity is fed from so many sources.

The eradication of tuberculosis is no longer a local or a national problem, but a world-wide concept needing cooperation and support on a community as well as on an international basis.

Tuberculosis, having become an affliction of older people, should witness a fall in incidence as the members of the older generation pass on with their disease. The present younger generation, with a low infection rate, will in time take its place with less open disease more adequately treated and probably with good chemoprophylactic control of their infection. But this is a slow process, in which Darwinian survival and elimination will still play their part in treatment and prevention.

Tuberculosis has always been a family disease, most prevalent and devastating when families were commonly larger than they are today. But whatever occurs in the family size, home care of tuberculosis, unless carried out with meticulous regard for its infectiousness, may well influence the epidemiology of tuberculosis unfavorably in the future. However home care is managed, the family physician—whether he is internist or general practitioner—will continue in a key position in the use or abuse of the measures of control.

TUBERCULIN TEST

The tuberculin test will become increasingly important as the infection rate of tuberculosis falls. When the older age groups contain an increasing number of nonreactors, the tuberculin test will gain increasing usefulness in both case finding and the differential diagnosis of pulmonary lesions. The continuing record of the individual tuberculin reactor will be followed from the date of conversion to a positive tuberculin test. Depending on the age of the child or adult, this record of tuberculin-conversion — a sort of tuberculin case registry—will determine the need of treating the primary infection before the signs of overt disease appear.

Chemotherapy of the tuberculin converter to positive will become more widely used in infants under three years and in adolescents over fourteen years of age.

Isoniazid will be applied more widely as a preventive in the groups past forty years of age with known old lesions of uncertain and potential activity. Chemotherapy will be used for longer periods, perhaps indefinitely in those who have completed standard initial regimens but who end with open cavities unsuitable for surgery or with characteristics of instability in their lesion.

Better drugs may be found in the future. But isoniazid will undoubtedly be found efficient in controlling bacilli that break loose from dense cellular structures or from the heart of caseous lesions.

Concepts of adequate versus inadequate chemotherapy will without question greatly alter the future control of tuberculosis.

BCG will in the future have decreasing usefulness in communities and nations that have become sophisticated in modern chemotherapy and the use of isoniazid in the prevention of the complications of primary infections.

FUTURE OF SANATORIUMS

Sanatoriums, though fewer in number, will continue for the care of the long-term cases of tuberculosis. It seems inevitable and proper that initial care of acute tuberculosis will move more and more into the general hospitals.

Tomorrow, the tuberculosis sanatoriums may take on community leadership in the treatment and control of tuberculosis.

They could encourage friendly relations with the family doctor and the thoracic physician or surgeon who will care for their patients after discharge. They could gain the confidence of patient and referring physician by a close understanding that comes only with intellectual "give and take" with a diffusion of knowledge between those inside and outside the sanatorium, both of whom are interested in tuberculosis and guard the welfare of their patients. The future holds a neat opportunity for the sanatoriums that work closely and intelligently with the family physician, and their continued survival may depend on such cooperation. In these days of home care of tuberculosis the opportunities of the sanatorium for undergraduate and postgraduate community education in tuberculosis could be very great and this deserves serious thought.

The X-ray will continue to be the most important tool in chest diagnosis in spite of radiation hysterias. Manufacturers will produce safer X-ray machines and better protective devices but only if radiologists can be persuaded to use them and patients can be urged to request them.

General-hospital admission X-ray programs for those over thirty years of age will be given wider recognition for their usefulness in case finding for both tuberculosis and cancer of the lungs. In the old-age groups that populate general hospitals, there is interest not only in finding the new and unknown cases of tuberculosis but also in re-locating the known recalcitrant and the unknown relapses found by chance.

Education in tuberculosis will be a continuing job in the future among members of the medical profession and the laity. Research will require larger funds as the task of eradication becomes more difficult. The time has passed for being impressed with either the decreasing mortality or the specific number of reportable cases of tuberculosis. Rather, one should gear all planning toward the many more millions of people who are infected with tubercle bacillus and toward those who are the potentially active cases of tuberculosis of the future. The importance of following known, treated tuberculous persons for the prevention and detection of relapse will be a far tougher job in the future than the detection of new active cases of tuberculosis.

The goal of eradication of tuberculosis, ephemeral as it may be, will not even appear on the horizon until the perspective of both national and world-wide control is understood by every community, no matter how small. There are years of intensive and imaginative work ahead. There is probably no short cut to the ultimate victory. Tuberculosis is still embedded in people in every corner of the world, and world-wide cooperation and expenditure of both energy and money will be needed for many years.

Book Reviews

EVALUATION OF THE PELVIS IN OBSTETRICS. Charles M. Steer, M. D., Med. Sc. D., F.A.C.S., F.A.C.O.G. Associate Professor of Clinical Obstetrics and Gynecology, College of Physicians and Surgeons, Columbia University, and the Sloane Hospital for Women. Second Edition. Pp. 131, illustrated, 1959. W. B. Saunders Company, Philadelphia and London.

This small book contains an excellent description of the pelvis and discusses pelvic cephalic pelvic disproportion. It is of considerable interest to the graduate student of obstetrics. It is beautifully written and illustrated and as such can be used as a textbook.

UPPER DIGESTIVE TRACT. By Frank H. Netter, M. D. Pp. 206, Illustrated. 1959. Ciba Pharmaceutical Products Inc.

This book is published by the Ciba Company and is really a compilation of paintings of the digestive tract. The paintings are done by Dr. Netter who is a noted medical illustrator. The book encompasses both anatomy and pathological anatomy. The text is well written but is entirely secondary in importance to the quite beautiful illustrations. There can be no hesitancy in recommending this as a textbook to the gastroenterologist and to the medical student. It probably does not occupy an important nitch to the average practicing physician.

BIOPSY MANUAL. By James D. Hardy, M. D., Professor and Chairman of The Department of Surgery, University of Mississippi, School of Medicine, James C. Griffin, Jr., M. D., Assistant Instructor in Surgery, Administrative Chief Resident in Surgery, National Cancer Institute Trainee, University of Mississippi School of Medicine, and Jorge A. Rodriguez, M. D., Assistant Professor of Surgical Anatomy, The Department of Surgery, University of Mississippi School of Medicine. Pp. 150. Illustrated. 1959.

W. B. Saunders Company, Philadelphia and London.

The authors have written an outstandingly interesting small book on biopsy technique. Surgical textbooks seldom allot much space to the actual technique of performing biopsies. This small textbook fills a needed nitch. There is a very adequate discussion of fixatives and instruments. The text includes not alone percutaneous biopsy technique but also endoscopy; it also discusses biopsy technique during surgery. The book is well written and is well illustrated. It is heartily recommended to the general physician and to the surgeon.

Answer to What Is Your Diagnosis

This 4-year-old colored female was brought into the hospital when her mother found a large mass in the left side of the abdomen.

A left nephrectomy and post operative irradiation was carried out.

Films show a large mass in the left kidney region. The left renal calyces are distorted and depressed.

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The Initial Management of Major Trauma To The Kidneys and Bladder**

RUSSELL SCOTT, JR., M.D.*

The subject of trauma is of growing importance to the general practitioner, general surgeon, and urologist. The steady increase in the number of automobile and industrial accidents coupled with the ever present problems of civilian or military disaster make an understanding of this subject mandatory.

This paper will include a discussion of the diagnosis and initial management of trauma to the kidneys and bladder. The first part of the discussion deals with the diagnostic evaluation of a patient in whom trauma to the urinary tract is suspected. To help crystallize the approach to such a patient, the discussion will be presented as if one were confronted with a specific patient in an emergency room.

On initial contact with a patient who has sustained serious injury all of the routine questions and examinations are carried out to be sure that death is not impending from some defect such as obstruction of the air way or massive bleeding. After the initial cursory examination a complete history and physical examination is then carried out. For the purposes of discussion it can be assumed that injuries to other systems have been ruled out and attention may be focused upon possible urinary tract injury.

In obtaining a history and physical examination following injury all of the details of the accident are important; whether the patient was crushed, pushed, kicked, etc. It should be kept in mind that any of the urinary structures can be injured by minor trauma, as minor as a fall on a slippery floor. Certainly a patient who has received major trauma from an automobile accident could have sustained trauma to the urinary tract at any level.

DIAGNOSIS

In eliciting a history to evaluate the possibility of renal trauma it is helpful to keep in mind the etiologic and pathologic classifications of renal trauma. The etiologic factors and incidence of each are as follows:

Crush injury—60%
Falls—20%
Blows—10%
Penetrating wounds—10%

Falls as short as four feet may cause rupture of the kidney. Even sudden spontaneous movements without external

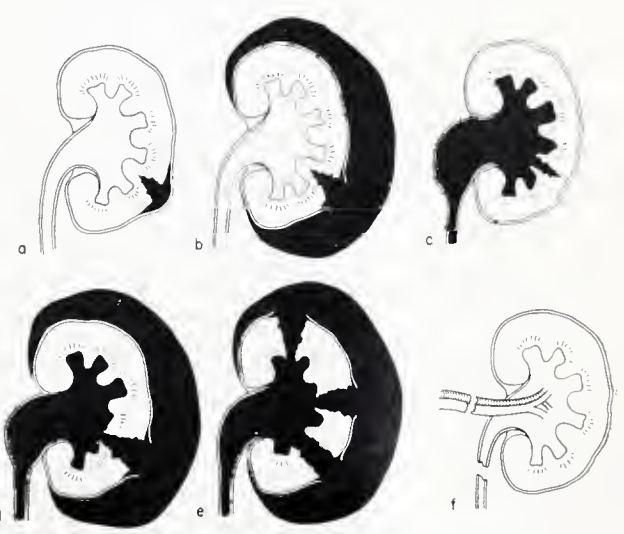


Figure I: Types of Renal Injury.

*From the Division of Urology, Cora and Webb Mading Department of Surgery, Baylor University College of Medicine.

**Presented at Symposium on Trauma, El Dorado, Arkansas, July 20, 1958.

violence can on rare occasions cause rupture of a diseased kidney.

The pathologic patterns possible are simple contusion, subcapsular hematoma, simple rupture of the parenchyma or pelvis, maceration of the kidney, and laceration of the renal vascular pedicle (Figure I).

A history of pain in the flank or upper abdomen, with or without radiation to the groin, is typical. The pain may be constant or colic in character. Gross or microscopic hematuria will be present in 95 per cent of the cases. It is of the utmost importance to remember, however, that hematuria may be absent even with extensive renal injury. This can be brought about by complete rupture of the ureter or extensive vascular injury to the pedicle.

Physical examination will reveal costovertebral angle tenderness in 75 per cent of the cases. Abdominal rigidity can be elicited in 40 per cent of the cases. A flank mass may or may not develop, but its presence is highly suggestive of renal trauma with hemorrhage. With rupture of the peritoneum the blood may pass into the peritoneal cavity and a mass may fail to appear, even with massive bleeding. In such cases signs of peritoneal irritation may be present. Shock occurs in about 15 per cent of the cases.

Thus, the pertinent points of the history and physical examination such as hematuria, a flank mass, shock, or abdominal rigidity are suggestive, but not diagnostic of renal trauma. Additional studies will be necessary to define the presence and extent of injury. A discussion of such diagnostic studies will follow.

In evaluating the possibility of injury to the bladder it is again helpful to understand the pathologic types of bladder injury, namely simple contusion, interperitoneal rupture, and extraperitoneal rupture. It is also helpful to keep in mind that the bladder of a child less than twelve years of age is primarily an abdominal organ and is easily ruptured. After twelve years of age the bladder is primarily a pelvic structure and is rarely ruptured without pelvic fracture.

In evaluating the history with reference to bladder trauma the presence of hematuria is again suggestive of injury to the urinary tract and requires complete evaluation. Suprapubic pain is usually present and, in most instances, is constant and boring in type. Such pain, however, may be produced by pelvic fracture without rupture of the bladder. Urgency with inability to void is highly suggestive of injury to the bladder, but again it can occur with simple fracture of the pelvis.

Physical examination will usually reveal suprapubic tenderness, with or without abdominal rigidity. Pressure over the symphysis pubis may reveal deformity, crepitation, or tenderness due to fracture of the pelvis. Rectal examination may reveal a boggy, cystic mass in the area of the prostate or bladder. Such mass is caused by extravasation of blood or urine which on occasion will lift a ruptured prostatic urethra away from the urogenital diaphragm and make palpation of the prostate impossible. With fracture of the pelvis spicules of bone may be palpated by rectal examination.

With reference to the urinary bladder it may be said that urgency with inability to void, suprapubic pain, hematuria, pelvic mass, or evidence of a fractured pelvis are all suggestive evidence of a ruptured bladder or prostatic urethra and necessitate further urologic investigation.

At the completion of the history and physical examination an alert physician will have a very good idea of the probable sites of injury. Without detracting from the signs and symptoms enumerated, two points should be stressed: First: If hematuria has occurred following major trauma to the trunk, the complete investigation outlined below should be carried out. If the patient is unable to void, the presence or absence of hematuria should be established by catheterization. Second: If on the basis of clinical ground one suspects that a patient has sustained injury to the urinary tract, but no blood is found in the urine, one should still proceed with as much of the x-ray studies as is necessary to rule out the suspected injury.

In the preceding section reference was made to "additional" studies. By this is meant intravenous pyelograms, cysto-

grams, or urethrograms. A brief description of the technique involved is given.

First, a number sixteen Foley catheter should be passed. If there has been a separation of the urethra, the catheter will probably become lost in the periurethral tissue and will not enter the bladder. The inability to pass the catheter is an important observation and this observation suggest complete rupture of the urethra. It is possible, however, for a catheter to pass into the bladder even if there is a complete rupture of the urethra. Therefore, the passage of the catheter does not rule out injury to the urethra. The injection and withdrawal of a known amount of water is not considered an adequate procedure to rule in or to rule out a rupture of the bladder. Following rupture of the bladder, it is possible for the omentum to seal the rupture and allow one to instill and withdraw a given quantity of water. On the other hand, if there are clots in the bladder, one may inject a certain quantity of water in the bladder and be unable to remove that same quantity and thus suspect ruptured bladder when no rupture is present.

Assuming that the catheter does pass into the bladder, the patient should then be moved to an x-ray table. After the preliminary films of the abdomen and pelvis are made a standard dose of pyelography media is given intravenously to evaluate the status of the kidneys and ureters. The standard set of films should be taken and read wet. If additional films are needed delay films may be taken. While one is waiting on the routine set of intravenous pyelogram films, two hundred cubic centimeters of a ten per cent solution of radiopaque media should be injected into the bladder. (One may dilute the regular intravenous media used to a ten per cent strength.) After the bladder has been filled, an anter-posterior, and if possible, an oblique film should be made. The bladder is then emptied but the catheter left in place. All films are read wet before any consideration is given to the removal of the catheter. If the films appear normal and an exploration of the flank or bladder is not indicated, a urethrogram may be made as the catheter is withdrawn. This is done by injecting a 20 per cent solution of radiopaque media through the urethral catheter as the catheter is withdrawn. An exposure of the urethra is made just as the tip of the catheter reaches the meatus. Should there be a rupture of the urethra, this technique will detect injury.

All films should again be reviewed and thus the entire urinary tract evaluated. To make an early, complete, correct diagnosis of genitourinary trauma is imperative.

In reviewing the films the following observations may be made. The flatplate of the abdomen may reveal a fractured pelvis, which in some series will be accompanied by a ruptured bladder in ten per cent of the cases. The flatplate may reveal a fractured spine, which in some series will be accompanied by injury to the urinary tract in ten per cent of the cases. Scoliosis with concavity towards the side of renal injury will usually be present. Obliteration of the psoas shadow and an area of increased density will often be observed if there is retroperitoneal extravasation of flood or urine.

The pyelogram may reveal non-visualization on the side of injury. It should be noted that non-visualization can occur with minor trauma and conversely there may be visualization with major renal injury. The presence or absence of excretion of media on the affected side is of limited but significant value. Extravasation of media into the perinephric space may or may not occur; when present this denotes parenchymal injury. Evaluation of the opposite kidney is imperative prior to exploration, since removal of the traumatized kidney may be necessary. This is probably one of the most important reasons for obtaining a pyelogram.

The cystogram may reveal an intraperitoneal rupture with an irregular, hazy extravasation of fluid into the abdominal cavity. (Figures II, III, IV. Figure IV is an intravenous pyelogram and cystogram in the same patient; the inaccuracy of relying on the intravenous pyelogram to diagnose a ruptured bladder is demonstrated.) Extraperitoneal rupture will be obvious from an extravasation of dye confined to the pelvic region (Figures V, VI). If rupture of the prostatic urethra has occurred, the bladder may be formed into a "tear drop" shape and pushed into the lower mid abdomen.

In such cases extravasation of dye will be noted around the base of the bladder.

TREATMENT OF RENAL TRAUMA

Support of the blood volume and watchful waiting are the basic principles in the treatment of renal trauma. Exploration of the flank will be necessary if bleeding continues to a degree that threatens life because of blood loss. When the decision is made to explore the patient to control hemorrhage, operation should be carried out at once. The physician must be prepared to explore the abdomen in addition to the flank. Because of this the patient should be positioned so that exploration of the abdomen can be carried out without difficulty. Among patients with penetrating wounds of the kidney ninety per cent will have damage to the adjacent viscera. Among patients with non penetrating renal injuries twenty per cent will have injury to the adjacent viscera.

Once the kidney is exposed, the management of the traumatized kidney can be classified on the basis of the surgical procedure that is indicated. Simple suture or ligation of bleeders may be the only procedure necessary. In placing sutures great care should be taken not to



Figure II: Cystogram demonstrating Intraperitoneal Rupture of the Bladder with Extravasation into the Peritoneal Cavity.

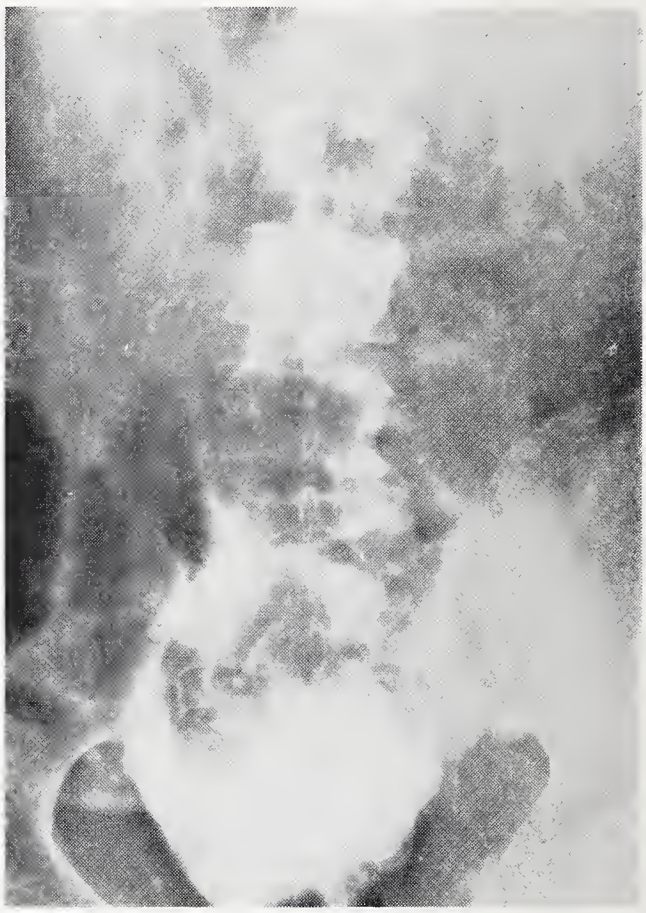


Figure III: Cystogram demonstrating Intraperitoneal Rupture of the Bladder with Extravasation into the Peritoneal Cavity.



Figure IV (A): Intravenous Pyelogram with Normal Appearing Bladder.

damage adjacent structures. (Duodenum, colon, vena cava, etc.) If the status of the opposite kidney is not known, this



Figure IV (B): Cystogram and Same Patient demonstrating Intraperitoneal Extravasation.



Figure V: Cystogram demonstrating Extraperitoneal Rupture with Extravasation at Base of Bladder.

conservative treatment is mandatory. Where suture or ligation fails to control hemorrhage and the status of the other kidney has not been determined prior to surgery, the kidney can be packed and nephrectomy carried out at a later time after the status of the other kidney has been established. Partial nephrectomy or major repairs are rarely justified as the incidence of post-operative complications or recurrent hemorrhage is high. If the status of the opposite kidney has been established, nephrectomy is usually indicated under any of the following circumstances: severe hemorrhage that cannot be controlled by ligature or suture, parenchymal damage to a degree that the survival of the kidney is in doubt, or damage to the vascular pedicle to a degree that the loss of the kidney is likely.

TREATMENT OF BLADDER INJURIES

The principles of managing a bladder injury are suprapubic drainage, generous perivesical drainage, and closure of the rent in the bladder if possible.

In carrying out surgical exploration of the bladder the skin preparation and areas



Figure VI: Cystogram demonstrating Extraperitoneal Rupture with Extravasation at Base of Bladder.

of drape should include the penis and scrotum as well as the abdomen so that urethral instrumentation is possible. A lower abdominal incision of the surgeon's choice is recommended. As the perivesical space is entered, urine and blood will often obscure the field. This should be evacuated with the generous use of suction and sponges until the field is clear. A collapsed bladder may be difficult to identify. In such cases a sound or catheter may be passed per urethra to help the operator identify the collapsed bladder with certainty. The peritoneum should then be reflected off the dome of the bladder and the bladder opened. If the perforation can be approached and closed with ease, the repair should be done. On occasion it may be desirable to extend the cystotomy opening which has been made in the dome down to the rent in the bladder, making one large opening in the bladder. The larger rent in the bladder may then be closed with a running stitch from the depths of the bladder out. If there has been an intraperitoneal perforation, the peritoneal cavity should be opened, inspected for intra abdominal injury, and the urine removed from the peritoneal cavity. The peritoneum is then closed without drains.

If the patient has a rupture of the prostatic urethra, a Foley catheter should be passed per urethra and guided into the bladder. It may be necessary to employ the two catheter technique to get the catheter to pass into the bladder. The bag should be inflated and the prostatic urethra snugged down into its normal location. Such a maneuver will not only reapproximate the severed ends of the urethra but will act as a splint. To add additional fixation two or three chromic sutures may be used to attach the prostatic capsule to the urogenital diaphragm. A number thirty-two cystotomy tube is then placed in the bladder for drainage and the retropubic space generously drained.

SUMMARY AND CONCLUSION

1. Early correct diagnosis of urinary tract injury is imperative.

2. Following major trauma the occurrence of hematuria or the presence of any sign or symptoms that makes one suspicious of urinary tract injury will necessitate an intravenous pyelogram, cystogram, and, in many cases, a urethrogram.

3. Renal trauma should be handled conservatively unless continued bleeding threatens life. Exploration is then indicated. The kidney should not be removed if it appears viable and bleeding can be controlled by simple means. The kidney should not be removed if the status of the other kidney is undetermined.

4. The cardinal principles in the management of the ruptured bladder are first, adequate suprapubic drainage; second, adequate perivesical drainage; and third, closure of the perforation.

Chest Trauma**

E. J. Beattie, Jr., M.D.*

Injuries to the chest occur frequently and are potentially serious. The modern automobile is a common source of thoracic injury. Braunstein in a review of 1,678 patients injured in automobile accidents found that injuries to the neck had the highest mortality. With neck injuries 16.7 per cent died. Injuries to the head and to the thorax were next in severity—5.4 per cent of each group died, whereas 3.5 per cent of abdominal injuries were fatal and injuries to the upper and lower extremities had a mortality rate of 0 per cent and 0.4 per cent, respectively. Braunstein emphasized the fact that only 35 per cent of the patients had injuries confined to one body area. Two body areas were injured in 33.8 per cent and 30.9 per cent had three or more body areas injured. This highlights the fact that the physician must be vigilant in searching for all evidence of injury. One of the most important requirements in caring for the injured is to make a complete examination, preferably with all his clothing removed.

Certain types of thoracic injury are rather common. The more common injuries will be discussed first:

1. Simple Rib Fractures Without Pleural Damage.

This is perhaps the commonest injury to the thorax; it may result from a fall or blow. Its chief symptom is pain. It is important that the physician ascertain that there is no intrathoracic damage by chest x-ray. The pain caused by the fracture may cause shallow respirations and the patient will not want to cough. As a result, a simple rib fracture is not infrequently complicated by atelactasis of the underlying lung which in turn may lead to pneumonitis. Even a simple rib fracture may be of considerable importance in the aged or debilitated patient with poor respiratory reserve.

The most important treatment is control of the pain. This can be carried out by intercostal block of a few cubic centimeters of 1 per cent novocain. Novocain block is usually not done except for the patient with severe pain. The time-honored adhesive strapping of the hemithorax is not very effective, especially in obese women. A more satisfactory type of support is an encircling bandage of wide adhesive tape or an elastic bandage. This bandage should be applied in mid-inspiration around the lower chest below the breasts, or nipple line in the male. The main disadvantage of this type support is its tendency to limit respiration. In the patient with poor respiratory reserve, it may be impossible to use. In most cases satisfactory pain relief can be obtained with codeine and aspirin. Usually stronger narcotics are not needed and are contraindicated if they further depress respirations. On the other hand, it must be remembered that relieving the pain and forcing the patient to cough is the best prophylaxis against atelectasis. Usually these patients need not be hospitalized unless they are old or feeble.

2. Major Fractures of the Ribs and/or Sternum.

In addition to the problem of pain described above, the problem here is the possible instability of the chest. An unstable chest is very dangerous if it is large in extent or if the functional reserve of the patient is poor. It is important to be certain that there is no intrathoracic damage; if there is, it must be concomitantly treated as described below. As an emergency matter, compression of the unstable chest may suffice. If the unstable area is large, an attempt to stabilize the chest by traction on sternum or ribs with aseptically applied skin towels may be beneficial. Tracheostomy in this condition may be very helpful by itself since it eliminates dead space and permits aspiration of the airway. Precautions must be taken that tracheal aspirations are done aseptically since hospital bacteria can easily cause serious infections in the patients with some atelectasis. If the instability is extensive and bilateral, some form of artificial respiration with a tank respirator or with a mechanical respirator attached to a tracheostomy may be lifesaving.

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**Presented at Symposium on Traffic Injuries and Antibiotics, Little Rock, Arkansas, November 9, 1958.

3. DISRUPTION OF THE THORACIC WALL.

With disruption of the thoracic wall the pleural space is in continuity with the outside atmosphere, a so-called "sucking wound" of the chest occurs. The danger to the patient depends to a considerable degree on the size of the "sucking wound", whether or not there is a free pleural space in the thorax involved, whether or not the mediastinum is mobile and undiseased or scarred and fixed, and on the respiratory reserve of the patient. A large "sucking wound" in a patient with a free pleural space, and an undiseased mediastinum will promptly result in death unless it is closed. The emergency treatment is to close the wound, preferably at the end of expiration. The definitive treatment in the hospital is to close the wound surgically while intratracheal positive pressure is being employed.

4. INJURY INVOLVING PLEURAL CAVITY, LUNG AND/OR MEDIASTINUM.

This type injury follows penetrating injuries of the chest from missiles, from fragmented ribs, or indirect violence. It characteristically causes hemothorax and/or pneumothorax.

a. HEMOTHORAX.

The blood in the thorax can come either from the pulmonary vascular system with its relatively low pressure, 30/10 mm mercury, or from the systemic circulation with its normal blood pressure of 120/80. Bleeding from the lungs has a general tendency to stop. Hemorrhage from the major pulmonary vessels is usually promptly fatal. Hemorrhage from the systemic vessels usually involves the intercostal arteries or the internal mammary arteries, the great vessels of the thorax, the innominate veins and cavae, the aorta and its branches, and usually results in prompt death. The smaller systemic vessels may continue to bleed. Pleural adhesions may prevent the hemorrhage from being large, but in a free pleural cavity hemorrhage may be fatal.

The treatment of hemothorax consists in maintaining the circulating blood volume if the hemorrhage has been of significance and removing by aspiration the blood from the pleural cavity. At one time it had been thought that permitting the blood to stay in the thoracic cavity would have the valuable tamponading effects. It is now considered better to aspirate the blood. If the bleeding continues, prompt thoracotomy with intratracheal anesthesia is needed to stop the hemorrhage. Another reason for removing the blood by daily aspiration is to prevent a fibrothorax which will seriously hamper lung function in the future. Also, there is greater danger from an empyema if a large amount of blood is allowed to remain in the thorax.

b. PNEUMOTHORAX.

Laceration of the lung or airway may cause a pneumothorax of "simple" or "tension" type. In the "simple" pneumothorax the air in the thorax has remained negative to atmospheric pressure whereas in the "tension" variety type pneumothorax the air in the thorax has become positive to atmospheric pressure. This results in collapse of the lung and displacement of the mediastinum with serious interference with respiration. Pleural or mediastinal adhesions may keep the pneumothorax localized. A localized tension pneumothorax would not have so serious an effect upon respiration unless the respiratory reserve was low.

If there is a small "simple" pneumothorax and the patient has no dyspnea, the treatment can consist of watchful waiting. If the pneumothorax is extensive even if it is not thought to be "tension" in type, it is preferable to aspirate the air by a thoracentesis or to introduce an intercostal catheter through a trochar using local anesthesia. The intercostal catheter is connected to a water-seal drainage bottle under the bed. This permits evacuation of the air and re-expansion of the lung. If the pneumothorax is tension in type, an absolute emergency exists. It should be treated by prompt aspiration of the air and maintenance of a continuous vent for this air. This can be done as an *emergency* by using an intravenous needle attached to intravenous tubing with the opposite end of the tubing submerged under water in a glass of water under the bed. More definitive treatment employs an intercostal catheter attached to a water-seal drainage bottle.

A considerable degree of subcutaneous emphysema may occur. The appearance of the patient may be alarming to the

relatives, but is usually not life-endangering as long as the lung is expanded and there is no tamponade in the mediastinum. It is important to remember that the air in the subcutaneous tissue in the chest x-ray may simulate lung markings so that a pneumothorax with complete collapse of the lung may exist and be missed in a routine chest x-ray.

Some conditions resulting from trauma of the chest occur much more frequently. The following are examples:

5. FRACTURED BRONCHUS.

At times trauma may fracture a bronchus. This condition should be suspected if there is a large persistent air leak from the pleural cavity associated with a persistent atelectasis of all or part of the lung. If bronchoscopy confirms the diagnosis the definitive treatment is thoracotomy under intratracheal anesthesia and repair of the damaged bronchus.

6. CARDIAC INJURY.

The heart may be injured in thoracic trauma. Indirect violence can produce infarction of the myocardium. More commonly, laceration of the myocardium or pericardium ensues. If the myocardial laceration is large, prompt death usually occurs. A small sized laceration of the myocardium may result in pericardial tamponade. In this situation prompt aspiration of the pericardial sack may be life saving. Aspiration is best done to the left of the xyphoid just below the diaphragm avoiding the left internal mammary artery and approaching the heart from its inferior aspect where there are no large coronary vessels. If the tamponade re-occurs, prompt thoracotomy is indicated.

7. DIAPHRAGMATIC HERNIA.

Occasionally the diaphragm is torn or penetrated. A traumatic diaphragmatic hernia may permit abdominal viscera to enter the thorax with encroachment upon respiration. On the right side the liver tends to block the opening. On the left side abdominal viscera enter the thorax readily. Care must be taken to distinguish a pneumothorax from a gas filled abdominal viscus. Abdominal viscera must not be aspirated through the thoracic wall. If a traumatic diaphragmatic hernia is diagnosed, prompt thoracic surgical repair is indicated.

8. TRANSTHORACIC ABDOMINAL INJURY.

If the thoracic trauma was penetrating and if the weapon or missile went below the plane of the 7th rib posteriorly one must presume that the abdominal cavity has been entered on the left side. This requires abdominal exploration to ascertain the abdominal injury. A period of watchful waiting may be employed if the injury is below the diaphragm on the right since the liver is the usual organ damaged.

9. ESOPHAGEAL INJURIES.

If the mediastinum is transgressed by missiles, immediate exploration is indicated. Injuries to the esophagus permitting the leakage of esophageal contents into mediastinum if not treated surgically have high mortality rates. If esophageal laceration occurs or is suspected, exploration of the mediastinum with attempted repair of the esophagus and satisfactory drainage of the mediastinum and thorax is indicated.

From the above description it can be seen that thoracic injuries may be very serious. The patients should be hospitalized. Careful physical examination as well as appropriate PA and lateral chest x-rays are indicated as a guide to therapy. With proper management the mortality rate should be gratifyingly low.

The Psychological Factors In Illness**

Leo H. Bartemeier, M.D.*

"What will he find out about me? Will he be able to help me?" These are the fears and worrisome questions in the minds and hearts of many new patients who seek our professional services. Very few of us maintain any awareness of how difficult it is for many persons in the community to make the final decision to consult us about themselves. So many of them have postponed it for a long time. Some come of their own volition; some come at the wishes of their families. They say to themselves, "I'm not going to tell him very much", though more or less every new patient is willing to offer us cooperation on this first visit, and is somewhat frightened. And why shouldn't he be, because we are strangers to him, and he can only come to know us gradually, as we can come to know him gradually? At the time of the first visit the patient is searching us out. How? In the same way that you and I know when we come into a room whether the person we meet there is interested in us or not. Whether he cares or not. Our famous predecessor, Doctor Francis Peabody, Professor of Medicine at Harvard, always said that, "The care of the patient begins with caring *for* the patient".

Unfortunately, we are pressed for time, often with waiting room crowded, telephones ringing, trying to remember the needs of our families, knowing that we will have to meet schedules for the rest of that day. But insofar as we can spend a brief time with every new patient on the occasion of this first visit with undivided attention, here is my brother who is suffering, who's scared, who's frightened, who's been a long time making up his mind to do this. Some people never do. They are afraid of what the doctor may find. They think he may find "something worse than what I think I have, and I should rather go along as I am". I think few of us realize that there are in our population in the United States today probably millions of people in need of medical care who never, never see a physician for one reason or another. The previous experience of the members of the family with doctors of medicine has much to do in shaping the attitude of the new patient. On questioning him about his illness, he will tell us some things which aren't quite true, and we must accept the fact that because he is afraid, he is defensive and protective, because he does want us to think well of him. You and I feel the same when we go for our examinations. What we hear from him somewhat later is often somewhat different from what he told us at the beginning. These are some of the earliest psychological problems in organic pathology. There are patients who come fearing the worst, and we can't tell them very much until we know them better. Let us always be extremely careful of what we say until we know, with reasonable certainty, what kind of person we're dealing with, because as practitioners of medicine we realize that it is not merely the illness that we're concerned with, we are always concerned with the person who has the illness. This is a demand put upon us through the advance of modern medicine. Those of us who graduated prior to World War II have had very little education in the field of inter-personal relations in the practice of medicine. Many a patient has been made worse by being given information which was too painful for him to tolerate, or to withstand, and was seen later suffering from serious depression, in other ways made worse, not to return to the offices of a physician but to go elsewhere, to the quacks and to the charlatans. So we have a grave responsibility, and as the Germans have always said "The beginning is always tough and difficult." And as the beginning goes, so goes the rest of our continuing relationship with the patient, and our efforts should be to try with intuition and by his facial expression to understand what this person before us is feeling, and to tread our way gently, and to not be in a hurry, and to not be anxious, and to not have to show him what we know and how smart we are. This, I think, is of terrific importance. As long as we are at one with him he is safe, but until we

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*Washington, D. C.

have exhausted our efforts to understand him we had better withhold what information is of greatest importance. This is, of course, particularly true with patients whose illnesses are of a nature that precludes the possibility of much improvement. How does he come to know us? By what we say? Oh, that's rather unimportant. He knows us by our general muscular tonus, whether we are relaxed, whether we're tense. He knows us by the way we dress, the way we sit in our chair, and by the way we take his medical history. I regret to say that our medical histories are a shame to our profession. Great physicians have said the same for many a year. Why should we be in such a rush to get such brief information as "onset — three years ago," pain, a kind of an abbreviated story. That's all right for the first visit, but why can't we continue this very essential part of our examination of the patient throughout all the subsequent time we are ever to spend with him. History taking is the first stage of every medical examination. We use our imagination. We place ourselves in the position, in the circumstances, in which the patient before us first experienced these symptoms. It is surprising how much human beings know about themselves, and how much we as physicians miss in getting this information. "Well," he said, "Doctor, I woke up last Tuesday morning, and I was short of breath and that lasted for some time. I had difficulty getting myself about, shaving, taking my bath, and gradually, after coming downstairs for my breakfast, my breathing seemed to ease up a bit. Yes, I was perfectly well the night before. I slept well. I don't see why this should happen to me. I immediately wondered, reading the papers, seeing my friends die suddenly, if this was some indication of heart disease." He already was curious about himself, as all patients usually are. Question. "Do you remember dreaming anything in your sleep?" Why shouldn't that be a subject for discussion with him? Does it make any difference whether we understand the meaning of dreams or not? But doesn't it show an interest on our part? What preceded the onset of this modern dyspnea? "Yes, I remember it clearly, I was fighting, I was arguing, I was mad as I could be with so and so, my business partner." He tells me a few more details. Knowing, as you know and as I know, that violent feelings discharged in sleep may become too violent for sleep to continue. It's interrupted. Instantaneously, that same emotion is converted into dyspnea. So far, so good. Not that I know he doesn't have a cardio-respiratory problem, I'll come to that later, but I note this briefly in my book as part of the history of the present illness. It leads me, however, to ask him "Has there been any asthma in your family?" And I asked him this only subsequently, so that he'll not make the connection. So we go on with his history rather briefly. We do a fairly decent physical examination and tell him, "So much, so good. You've cooperated well, it hasn't been easy for you. We'll learn more the time of your next visit. Do you feel the need of any medicine?" "No", he says, "I'm all right now". He says, "I just got scared." I say, "All right, but look, my friend, come to see me next week, don't fail." And so next week we go further. And after we've had an electrocardiogram, after we've examined his cardiovascular system, we can say with a certain degree of certainty, "You seem fairly sound". And we might say, "For the time being, at least, it looks as though you are a fellow who is somewhat afraid to loosen up with his feelings during the daytime. Now you're a Christian, but you know Our Lord Himself became angry with the money changers in the temple, and thereby gave us an example. That when we have justification, we had better let loose and have no regrets about it, because if we have to inhibit and suppress and behave differently from the way we feel we are leading ourselves into difficulties. Your business partner, your wife, or whoever it may be, will respect you the more for having spoken out and been unafraid. You won't lose friends. Anybody who loves you will know that you, like anyone else, have temper, have frustration when treated unjustly. And that's my prescription to you today. Now come back to me in a month, and let us hear then what's happened in the meantime." And so we go on. Now don't you see from this simple, common, everyday experience how the

anger of this very carefully behaved and thoroughly controlled business man burst forth, got release in his dream where it became too intense for sleep to continue, he awakened and immediately had difficulty breathing, now his dyspnea with a little bit more difficulty getting the air out than to get the air in and this is difficult for many an asthmatic. And if we find, too, a history to back it up. But we're going to see him again. We're not going to let him go. No matter how busy we are, because we care that he shall fare well in the future and that he shall come to us when other illnesses strike him or the same repeats itself.

I learned these things the hard way, just as you have learned many things in your daily practice the hard way. But I was once called upon to conduct a clinic in a hospital group of medical colleagues and there was ushered in a girl of 18 who had been admitted during the night in a severe bronchila asthmatic spasm, and she came forward, we sat down on opposite chairs, I greeted her and said "How are you?" "Well," she said, "I'm a bit sleepy because I was awakened with another attack." "You were wakened with another attack?" "Yes." "What time?" "Four o'clock." "What were you dreaming about?" "I was fighting with my father. I was more angry than I ever can be in daytime life. That's what I always dream about, and that's why I always wake up with asthma, and that's what I have told every doctor I have seen, and when I tell them they look the other way, they change the subject, they don't appear interested." I said, "Well, I'm a little peculiar, I am a little interested. Tell me about your father." And as she went on to talk about her father she became increasingly angry and again almost asthmatic. But what she told me about her father was sufficient for me in that first visit to say to her, "I should like to know your father." And this man who was unintentionally ruining the life of this child, this young, attractive, otherwise healthy girl, I told him "before your girl can get well I'd like to spend some time with you and see what this is all about, because I do believe that unknowingly you have contributed considerably to the occurrence of this illness." And after he had been coming to see me for several months, his attitude toward her changed considerably. He had been a very loving father to her until she reached puberty and when she became interested in beautiful stockings and beautiful dresses, make-up and cosmetics and making herself attractive to boys, her father tore her down, rejected her violently, told her this was all nonsense, it was extravagant and so forth, and it wasn't. And so as he freed her and resumed more natural relationships with her there was not too much that I had to do with her subsequently.

Now you know, you know from your experience every day that you're working with patients whom one member of the family is working against. There is some one in the environment who is perpetuating the illness. So I said to my staff, "Why is this forty-six year old married woman being admitted to this hospital for the fourth time for the treatment of severe alcoholism?" "Doctor, we don't know." "You know what chronic alcoholics are like. Well, let's go through the record. Each time she had been admitted, she had been in the hospital for several months." Here comes my nemesis, I want to go on for about two hours with it. Well, I have to shorten things up quickly because I agreed to stick by time. The story back of this is that she, forty-six, is married to a gentleman, sixty-two, and every time she comes home from the hospital he is so happy that he has a big party in celebration of her return from the hospital, and they celebrate with plenty of everything conceivable to drink, and he says, "That's not her problem. Social drinking is never her problem. Her isolated drinking, that's her problem, and I want to make her a social drinker." But, of course, it goes right into the severe alcoholism quickly and under this rationalization this man keeps his wife either drunk at home or in the hospital, and thereby, saves his face in his weakening potency.

There is no illness that is free of its psychological components. And sometimes these become far more important from the point of view from medical care than the illness for which the patient came. And I have many, many instances

from daily rounds in hospitals to bear this out. Here's a young research scientist. They have him in the hospital with a very serious virus pneumonia. His fifth pneumonia of his life. And he's a big fellow, and he's a strong fellow, and he's not delirious. But he won't let a nurse come within ten feet of him. He curses them out. He uses vile language with them. He threatens to kill them if they touch him. And he becomes literally an unmanageable case. So we have to call in the interns, the attendants. He says, and all he knows about it is, that whenever he's sick he wants to be left alone. He doesn't want anybody to touch him. He can't bear to have any nurse do anything to him, and as I've talked to him I find that in his social life and as I talked to his friends, he is gentleness itself. He is thoughtful, he is considerate. His behavior with women is as conventional and as attractive as it can be, and he's an extremely intelligent person. But the nurse, any nurse is always a reiteration of his overly a g g r e s s i v e mother who frightened him in his childhood, and whenever he is in a passive, dependent relationship to an active, moving woman he is terrified. He's just terrified, and out of his terror, he's not himself. He's trying his best to protect himself, but his mother, a very intelligent and dear woman, otherwise, didn't understand how grabbing him and squeezing him and holding him on her lap and kissing him forcibly when he was wiggling and trying to get away, what affects this would later produce when he becomes a patient in the hospital. This is only one of a million kinds of psychological problems that we have to meet in daily practice.

Speech given at meeting of Arkansas Medical Society, Hot Springs, Ark., May 6, 1958.

What's NEW

Treatment of the Poisonous Snake Bite*

LAWRENCE G. PILLSTROM, M.D.**

For many years the opinion of physicians on the treatment of snake bite has been varied and conflicting. Fatalities continue to be reported in spite of the many remedies used. Although a large number of people bitten will eventually recover regardless of the treatment employed, there is a small per cent who will die unless carefully treated.

Snakes provide an exciting and interesting subject for investigation. From 30,000 to 40,000 deaths due to snake bites occur each year throughout the world (28). In the United States, 2,000 to 3,000 snake bites due to accidents occur annually, resulting in 10 to 20 deaths yearly. In Europe about 14 deaths are reported yearly, whereas approximately 25,000 deaths occur each year in India (21). Snake bites frequently occur in children and adults engaged in out-door activities, in experienced herpetologists, and in others who capture or handle poisonous snakes.

The mortality from snakebites in the United States during a five year period from 1950 to 1954 was 71 deaths as recorded in death certificates filed and reviewed by the U. S. Public Health Service (16). Rattlesnakes accounted for 55 of the 71 deaths. Cotton mouth moccasins were responsible for two deaths, and a coral snake caused one. The offending reptile was not identified in the remaining deaths. Among the total, 39% occurred in youngsters less than 15 years of age (Table 1); 16 children were less than 5 years of age. Approximately 32% of the deaths were in persons 50 years of age or more. Although it thus appears that the mortality is greatest among children, it cannot necessarily be concluded that susceptibility is greatest in this group, since figures are not available to indicate the total number of snake bites suffered in each age group. However, it is reasonable to assume, and recorded clinical experience supports the conclusion, that susceptibility to snake venom poisoning is, indeed, greatest at both extremes of life.

TABLE I
MORTALITY FROM SNAKE BITES ACCORDING TO AGE
(Modified from Parrish 16)

AGE (Years)	NUMBER OF DEATHS	PER CENT
0- 9	23	32.4
10-14	5	7.0
15-29	6	8.4
30-39	7	9.9
40-49	7	9.9
50-69	19	26.8
70 and over	4	5.6

In this same study (16) it was found that 52% of the patients were bitten on the lower extremities and 37% were bitten on the upper extremities. The interval between the time of the snake bite and the time of death was usually from two to 48 hours. It was of interest to note that 18 deaths occurred in Texas, 11 in Georgia, 10 in Florida, 7 in California, 5 in Arizona and Alabama, and 2 in Arkansas. Several other states had fewer snake bite victims but every state had at least one species of poisonous snakes with the exception of Alaska.

*Presented at Pediatric Grand Rounds, University of Arkansas Medical Center, April 29, 1959.

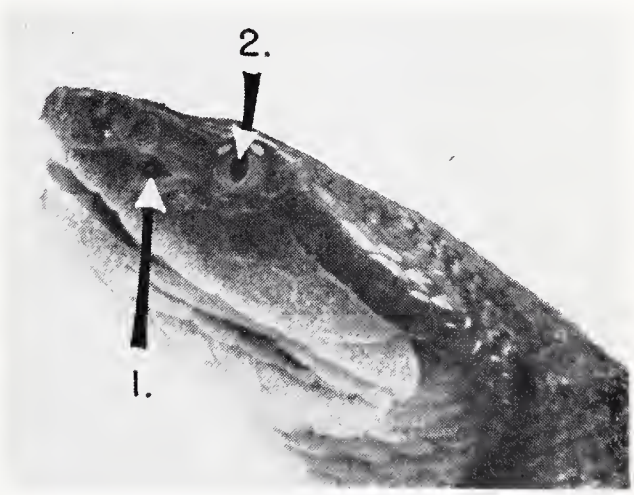
**General Practice Resident, University of Arkansas Medical Center.

It is important that medical men called upon to treat snake bite have a sound knowledge of the different types of snakes, in order to be able to differentiate the venomous from the non-venomous. Much damage and painful treatment is still inflicted by the indiscriminate use of incision and suction and the application of tight tourniquets in the treatment of bites of the harmless snakes, and by the unnecessary use of serum with its possible complications such as anaphylaxis, urticaria or serum sickness.



FIG. I
Timber rattlesnake (Crotalus horridus) held by a tong developed by the author.

There are 30 species of non-poisonous and 6 species of poisonous snakes found in Arkansas. The diamond-back rattlesnake (*Crotalus atrox*) is the largest and most venomous pit viper in Arkansas and is identified by the characteristic findings of loreal pits which are located bilaterally between the nostril and eye on the upper jaw, diamond-shaped blotches on its back, contrasting black and white rings on the tail; rattles are present on the end of the tail unless recently broken off. The timber rattler (*Crotalus horridus*) is more frequently found; and it has the loreal pit, chevron-shaped blotches, black tail (in adults) and rattles (Fig. I). The pigmy rattler (*Sistrurus miliarius*) is a smaller snake which seldom exceeds two feet in length and is the least venomous of the rattlesnakes. The water moccasin or "cotton-mouth" (*Agkistrodon piscivorus*) is semi-aquatic and usually found around lakes, ponds, and rivers. The oral mucosa of this snake is whitish in appearance, in contrast to the pink color seen in other snakes. Another distinctive



1. Loreal Pit Present 2. Elliptical Pupil
3. Anal Plate 4. Caudal Plates

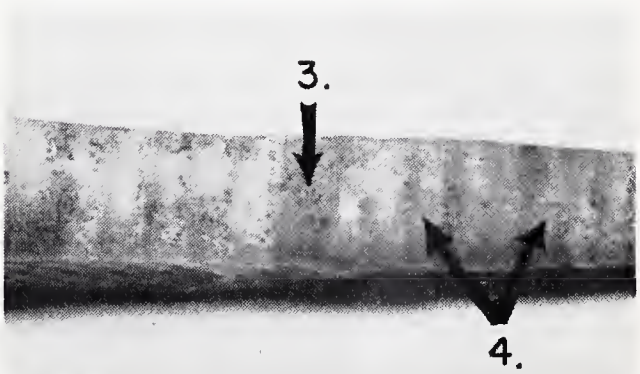
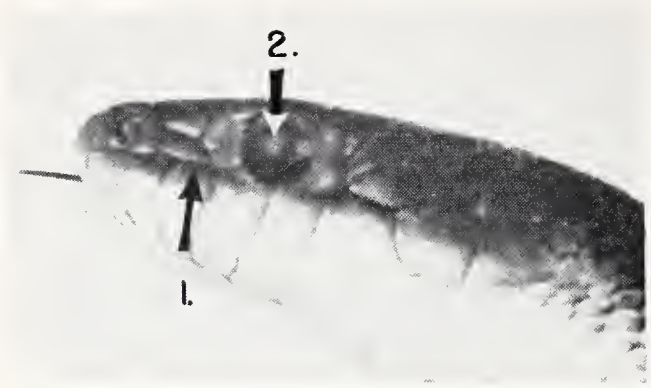


FIG. II
POISONOUS "PIT VIPER"



1. Loreal Pit Absent 2. Round Pupil
3. Anal Plate 4. Caudal Plates

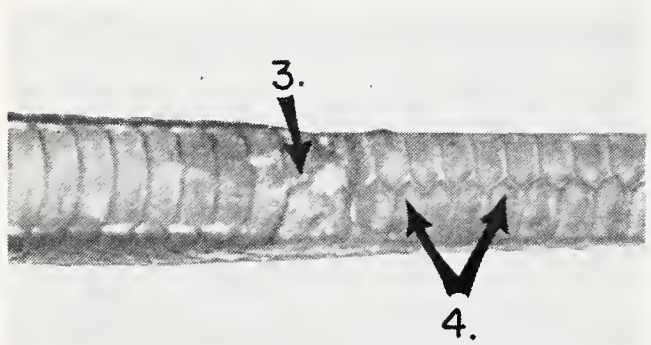


FIG. III
POISONOUS CORAL SNAKE AND
MOST NON-POISONOUS SNAKES

feature is a narrow brown black pigmented band which extends longitudinally behind each eye. It has the loreal pits, and is dark brown to black in color. The copperhead snake (*Agkistrodon contortrix*) has the loreal pits, is copperish in color and has hour-glass designs across the back (Figure I). All of the above mentioned reptiles are commonly called "pit-vipers" because of the loreal pits (Fig. II). Another criterion often used to identify the pit-viper is the arrangement of a single row of caudal plates, which are distal to the anal plate. The non-poisonous snakes have two rows of caudal plates distal to the anal plates, similar to the poisonous coral snake (Fig. III). All of the poisonous snakes found in Arkansas, with the exception of the coral snake, have elliptical pupils, the shape of the pupil may not be used to distinguish the poisonous from the non-poisonous snake. Most of the non-poisonous snakes have round pupils (Fig. III). The most colorful and deadly poisonous snake found in Arkansas is the coral snake (*Micrurus fulvius*) which has a bold pattern of alternating black, yellow and red rings with the yellow enclosing the red. The pupils are round and there are two rows of caudal plates distal to the anal plate. The coral snake should not be confused with the non-poisonous king snake (Lampropeltis doliata) or false coral snake which has red, yellow and black bands with the black enclosing the yellow. The pit-vipers primarily produce hemotoxic venom and the coral snake mostly neurotoxic venom but there is always a mixture of the toxins in the venom of any of the snakes described and their mixture may vary within a single species. At the site of the bite of a pit-viper, there may be one or two puncture marks. The coral snake may produce an abrasion of the skin but there are no distinct puncture marks.

The outstanding early clinical effect of poisonous snake bite is burning pain, often excruciating, which occurs at the site of the injury. A distinct swelling then develops and spreads quite rapidly. This edema soon takes on the aspect of superficial or deep ecchymosis which is so characteristic of poisonous snake bites. The patient becomes weak, dizzy and faint, perspires profusely, is nauseated, may have severe abdominal cramps and often vomits blood-stained material. The pulse is weak, pupils dilated, the respiration is difficult and generalized urticaria may develop.

The treatment of bite wounds from a poisonous snake is a very real emergency, and is most effective if early and aggressive. It may be divided arbitrarily into three classifications: first aid control, early local treatment and management of the late local and systemic complications.

First aid is aimed at minimizing absorption of the venom. The patient should immediately cease all muscular activity and should be immobilized as much as possible to prevent the spread of the venom. The injured extremity is placed in a dependent position. If the snake bite has been received on an extremity, a tourniquet is applied proximal to the bite so as to obstruct venous and lymphatic drainage but not the arterial circulation. The use of a tourniquet to block lymphatics is definitely indicated and should be applied as soon as

possible since complete immobilization is impossible. Much of the venom is transported by way of the superficial lymphatics and the envenomation does not become systemic until these communicate with the deep lymphatics at the axilla, popliteal area, thigh or groin. The tourniquet may be loosened for a few seconds every 15 or 20 minutes until it can be left off without the recurrence of pain or redness proximal to the bitten area or until the victim has received antivenin therapy. An occlusive tourniquet is contraindicated.

If ice is available a tourniquet should be applied and the injured limb immersed in ice water while the patient is being transported to the hospital. Cooling or refrigeration of the extremity is valuable in reducing the absorption of the venom and in reducing the pain (5). It has come to be realized that permeation of the tissues of the victim by animal poisons takes place largely by enzymatic activity. It is well known that the enzymatic activity is decreased at low temperatures and with cryotherapy the systemic effect can be delayed. After the temperature of the limb has been lowered incision and suction may be carried out by the physician in conjunction with cryotherapy and antivenin therapy. Incisions should not be made by a lay individual as vital structures may be destroyed (25). Suction is begun by mouth, suction bulbs or suction machine. A thin piece of rubber may be used when the suction is by mouth to prevent bacteria from entering the wound and venom getting in the mouth, however, the venom is harmless when taken orally unless there is a break in the oral mucosa. The limb should be placed in a sterile plastic bag or covered with sterile rubber or plastic sheets during further cryotherapy to prevent contamination of the incision wound unless ice packs are being used.

If ice is not immediately available the step usually suggested in first aid treatment of snake bite after the tourniquet is applied is incision of the fang marks and application of suction (5, 25). This method of treatment was first introduced by Crimmins and Jackson in 1927, but has been challenged as useless or even contraindicated by several investigators (13, 26, 2, 4, 22). In the first aid pamphlets originally issued by the Queen Saovabha Memorial Institute, incision and suction of the wound and application of pressure to express the venom were recommended. Recently, however, these methods have been discontinued in the belief that once the venom of a deadly poisonous species enters the body it is absorbed so readily by the tissues that incision or pressure only aggravates the injury (22). No mention was made of what type of venom was so rapidly absorbed. Ahuja stated that incision and application of potassium permanganate crystals is futile and should be abandoned because the crystal when rubbed into the incision, seldom came into direct contact with the venom and served only to increase the damage by producing necrosis and sloughing (1). The value of incision and suction was not investigated. Leopold and associates reported that incision and suction not only failed to aid but actually decreased the survival period (13). If should be pointed out that the investigators did not follow the standard method of tourniquet incision-suction treatment in that as they applied suction for only fifteen minutes rather than the conventional 2 to 6 hours.

Amaral believes incision and suction should not be used, except in those cases with large swelling and discloration followed by severe general symptoms, such as result from a bite by the Indian daboia or the majority of the North American rattlers (4). Since the great majority of deaths in the United States due to poisonous snake bites are caused by rattlesnakes, it would appear that incision and suction would be indicated routinely in moderate to severe poisoning due to these snakes. The tourniquet-incision-suction (T-I-S) method, in the absence of antivenin therapy or in combination with it, is of definite clinical value in the opinion of too many observers to be disregarded (5, 9, 14, 20, 27). The fact that considerable amount of venom can be extracted by this means is illustrated by experimental work in which a dog was injected with four lethal doses of venom followed three hours later by incision and suction. Half of the bloody fluid obtained was injected into another dog which died in

about 72 hours showing typical lesions of venom poisoning whereas the treated dog survived (12). Similar experiments have been carried out after obtaining fluid by incision and suction from humans receiving accidental snake bite wounds. The fluid was injected into laboratory animals which soon died. It seems obvious that considerable venom can be removed by adequate incision and suction and has been reported to have been removed up to 14 hours after a rattlesnake bite.

In addition to the incision over the wound, some investigators recommended five to ten ¼ inch incisions, ¼ inch deep, surrounding the wound (11). If edema progresses up the arm or leg, similar incision are made around the limb. Suction is continued for two hours, then intermittently for 2 to 4 hours (7, 10). The additional incisions are usually not necessary as adequate dosages of antivenin usually prevents progressive edema.

Poisonous snake bite wounds are usually contaminated, anaerobic puncture wounds, which predispose to infection and tissue destruction (17). It seems that incision and suction would help prevent anaerobic infections in addition to removing some of the venom, especially when the wound is irrigated with copious amounts of saline.

It appears that further experimental data and clinical evaluations of incision-suction treatment should be accumulated to establish the value of incision and suction in the treatment of snake bite.

If one wishes to be more vigorous there is evidence that *excision* and suction done within one hour following the bite will result in greater survival expectancy than incision and suction (17, 18). Amputation is sometimes recommended for snake bite of more deadly snakes such as cobra, kraits, and large rattlesnakes which have injected lethal doses of venom.

The most effective treatment for the bite of poisonous snakes is specific antivenin (2). Polyvalent antivenin is the next best choice and should be given as soon as possible after the bite. A skin test and conjunctival test should be performed before administering antivenin, since it is made from horse serum. If the patient is sensitive to horse serum the conventional method of desensitization is required. It is strongly recommended that only physicians or individuals capable of treating complications of horse serum reactions, especially anaphylaxis, inject the antivenin. It is essential to inject a large enough initial dose to overwhelm the poison. *The smaller the body of the patient, the larger the initial dose required.* The venom distributed in a smaller volume is less dilute and more rapidly toxic. Because children have less body fluid with which to dilute the poison, they may require twice the dosage of serum necessary for adults (6). For patients weighing 100 to 150 pounds or more, one vial or 10 ml. of antivenin is usually enough to neutralize the venom from the less virulent species such as moderate size copperhead or pigmy rattlers. For a bite by a similar specimen in a 20 to 40 pound patient, 3 to 5 vials may be required. Seven to ten vials have been administered as the initial dose in many cases, especially following bites of a large cottonmouth or rattlesnake. An additional 10 ml. of antivenin should be given every one to two hours if pain and swelling continues to progress.

No antivenin for the coral snake is manufactured in the United States. The Charity Hospital of Louisiana, New Orleans, Louisiana, maintains a stock of the Micrurus serum and sometimes the antivenin is kept on hand in large zoos. In the absence of specific coral snake antiserum Crotolidae antivenin should be used in large doses as early as possible because it has some neutralizing effects against Micrurus (coral snake) envenomation.

If the bite was inflicted on an extremity ¼ to ½ of the initial dose should be injected intramuscularly and subcutaneously at various points around the limb, above the level of the swelling. The remainder of the initial dose should be injected into a large muscle higher on the bitten extremity. The serum should not be injected into a finger or toe as vascular obstruction may occur. For late-treated patients exhibiting systemic symptoms, and especially in severe cases, associated with coma or paralysis, large doses of antivenin should be administered intravenously.

Adrenocortical steroid therapy has been advocated for snake and spider poisoning. Cortisone is known for its ability to in-

hibit local tissue reactivity to foreign proteins, its symptomatic effects on pain and fever and the general supportive action in reducing morbidity. Cortisone or corticotropin therapy is also helpful when there is generalized urticaria or anaphylaxis from the snake venom, tetanus antitoxin, antivenin, or antibiotics that may be used. Remarkable immediate symptomatic relief has been noted in some snake bite victims, but others have reported very little improvement. Minton, Schottler, Weiner, and Lukens were unable to show any beneficial effect of ACTH, cortisone or hydrocortisone when used as the *sole treatment* in snake venom poisoning of experimental animals (15, 22, 29).

Wood and associates reviewed 15 cases of snake bite poisoning in which cortisone and corticotropins were used in conjunction with antivenin therapy (30). They reported a pronounced decrease in morbidity when ACTH or cortisone were used as adjuvants in the treatment of snake bite poisoning. It would appear that glucocorticoid therapy is definitely indicated in moderate to severe poisoning, but should not be used alone or to the exclusion of other effective measures. Moderate to large doses should be used for 24 to 48 hours or more and the following scheme is recommended:

	CORTISONE mgm/24 hrs.	ACTH units/24 hrs.
Children up to 60 lb.	3-5/lb.	1/lb.
60-100 lbs.	200-300	60-100
100 lbs.	300-400	100

Equivalent amounts of synthetic glucocorticoids may be used with equal effectiveness. There is no evidence that ACTH is more effective than cortisone and since the latter can be given orally, its use is more convenient, especially in children.

If cryotherapy is being used, it should be continued for a few hours after antivenin has been administered as it will give some sedation and will retard the enzymatic action and absorption of the venom allowing detoxification to occur over a longer period of time. The warm-up period after 6 to 24 hours of cryotherapy is important. This must be done gradually and is best accomplished by allowing the water in which the member is immersed to come to room temperature gradually to prevent increased tissue destruction (25).

If the patient is having much pain, sedation should be given as soon as possible. Short acting barbiturates, Novaldin (R) and salicylates are recommended but Demerol, (R) morphine and large doses of Phenegan (R) are contraindicated as they are synergistic with most venoms (3, 19, 23, 24). Demerol (R) and morphine seem to be synergistic with the neurotoxins of snake venom, Gila monsters and scorpions. Antihistamines have been used by some physicians in snake bite treatment and for allergic reactions following antivenin therapy. The rationale for using antihistamines for poisonous snake bites is based on the observation that snake venoms cause the liberation of histamine in animal tissue. Heutsch used antihistamine compounds (antazaline or tripelenamin hydrochloride) in addition to serum treatment, and reported that these drugs quickly reduced the edema and hyperemia of the bitten region, acted as a sedative and stayed vomiting and dizziness. (8). Recent studies have proven Phenergan (R) to be synergistic with snake venom in dog studies and if given intravenously death will occur more rapidly (19). A one per cent procaine solution containing one minim of epinephrine solution 1:1000 to each 6 ml. may be injected in the area of the bite to help relieve the pain. The use of alcohol is contraindicated as this will increase the circulation and distribute the poison more rapidly.

Since the biting snake harbours pathogenic micro-organisms in the mouth and venom, the wound they inflict often becomes infected, and requires attention from this point of view. A wide-spectrum antibiotic should be given as there are numerous species of Gram negative and Gram positive bacilli usually present. Also, tetanus toxoid and/or antitoxin are indicated. Some investigators advocate gas-gangrene antitoxin, especially if the bite is severe (18).

Systemic manifestations are treated by general supportive measures such as blood transfusions, plasma, saline and glucose solutions, epinephrine, and oxygen. If blood transfusion is likely to be used, the patient's blood should be typed

as early as possible, since the venom soon alters protein structures thus preventing accurate cross matching. Urinalysis and hemoglobin determinations should be obtained intermittently. If considerable necrosis of the tissues occurs debridement will be necessary and late skin grafts may be required.

SUMMARY

The treatment of the snake bite will vary depending upon the severity of each individual case and species of the reptile. The early administration of antivenin is the best therapy and is usually indicated for every poisonous snake bite. First-aid should include immobilization, dependent position of the injured limb, tourniquet applied with slight tension a few inches proximal to the wound, cryotherapy, and for moderate to severe poisoning, incision and suction. If sedation is required, short-acting barbiturates, Novaldin, (R) or salicylates may be used in conjunction with cryotherapy and local injection of procaine. After a skin test for horse serum, sufficient amounts of specific or poly valent antivenin should be administered by the physician as soon as possible to neutralize the venom, reduce pain and prevent marked edema. Additional antivenin may be required every hour for a few hours following the initial injection. Cortisone should be given, especially in children, with moderate to severe venom intoxication. If edema progresses, after adequate antivenin therapy, a local anesthetic should be injected and small incisions made around the limb proximal to the swelling and suction applied in order to relieve pressure, prevent circulatory obstruction and tissue necrosis. Broadspectrum antibiotics should be started and tetanus prophylaxis given. Gas gangrene antitoxin should be given in severe bites. Epinephrine, plasma, blood, oxygen, saline and glucose solutions may be used to combat shock, hemorrhage, dehydration, respiratory distress and urticaria. If blood transfusion is anticipated type and crossmatch should be obtained early. Debridement and late skin grafts may be required if considerable necrosis of the injured tissue occurs.

The prognosis will depend upon: (1) The amount and toxic quality of the venom injected. (2) The location and character of the injection. (3) The age, size and resistance powers of the patient. (4) The amount and type of first-aid treatment. (5) The amount and type of specific and systemic treatment received.

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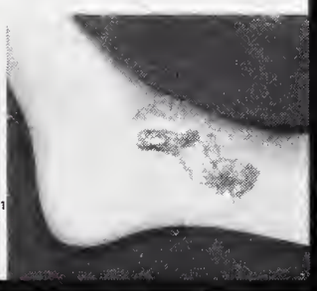




FORCE INJURY

severe bruises ... swelling ... cleared by fifth day[2]





VARICOSE ULCER

15 years duration ... resolved with VARIDASE[1]





INFLAMMATORY DERMATOSIS

rapidly spreading rhus dermatitis healed within a week[1]





INFECTED LACERATION

marked reversal in 3 days... returned to school... closure advanced[1]





THROMBOPHLEBITIS

back on his feet in a week after recurrent episode[1]





REFRACTORY CELLULITIS

normal routine resumed after 4 days of VARIDASE[1]

A TEACHING SEMINAR
FROM THE
UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

Irradiation Injury

JEANNE R. BONAR, M.D., AND WILLIAM H. PERKINS, M.D.*

INTRODUCTION

The harmful effect of ionizing radiation was first recognized about 60 years ago by Henri Becquerel, the Frenchman who discovered natural radioactivity. He placed a small amount of radium into a vest pocket to take to London for a lecture. After returning to France, he noticed that his underlying skin was erythematous. He consulted a dermatologist friend and together they developed the idea that if ionizing radiation could damage normal tissue it might, also, damage diseased tissue.

Since Becquerel's observation, the peculiarities of radiation injury have interested many investigators. During the past 10 years, about 600 papers have appeared yearly on the subject, yet it remains an enigma.

IONIZING RADIATION

Only ionizing radiation produces characteristic radiation injury. Alpha particles, beta particles, gamma rays, and x-rays are the common ionizing radiations. They are called ionizing because they interact with matter by ejecting electrons from the orbits of atoms in any matter they penetrate. The ejected electron has a negative charge of one, and the atom from which it was ejected has a positive charge of one. These two are called an ion pair.

Alpha particles have a charge of plus 2, beta particles a charge of minus one. Alpha particles produce ion pairs by pulling an electron from an atom, while beta particles produce the same effect by pushing an electron from an atom.

Since gamma and x-rays have no charge, they must actually strike an electron to eject it from an atom. This accounts for the high penetrating power of x-rays and gamma rays, because most of matter is an empty space.

In addition to ionization, these radiations may induce excitation of atoms. In this situation, an electron is not ejected from an orbit but merely raised to a higher energy level. This occurs when ionizing radiation supplies insufficient energy to an electron to eject it.

MECHANISMS OF RADIATION INJURY

When ionizing radiation is absorbed in living material, the sequence of events is the following:

Physical change $\rightarrow$ chemical change $\rightarrow$ biological change.

The basic physical changes are the ionization and excitation of atoms in tissue. Observations have been made on some of the resulting, varied chemical changes. Which chemical changes are the most important has not been determined.

Currently, many investigators believe that some of the more significant chemical changes will be among the following (1, 2):

1) Ionization of body water to form OH^-, H_2O_2, HO_2, and possibly other substances. These lead to oxidation processes.
2) Inactivation of enzymes.
3) Denaturization of essential proteins.
4) Alteration of protoplasmic colloidal properties.
5) Alteration of cell membrane permeability.

These changes have been demonstrated using microorganisms and small animals. The fallibility of the preceding deductions

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is that the amount of irradiation needed to produce these effects in vitro is much greater than that necessary to cause damage to living tissue (3).

The most prevalent of these theories is the first one. It has been postulated that the oxidizing radicals produced by ionization of water may induce the other changes (4). The protective effects of reducing agents such as cysteine has been attributed to their ability to remove these oxidizing radicals (5).

The biological changes have been intensively studied, and much information has been derived. The results most often observed are listed in Table I. Since most

TABLE I

Acute Effects	Chronic Effects
Symptoms of acute illness	Cataracts
Epilation	Premature aging
Necrosis of tissue	Increased frequency of tumors
Leukopenia	Genetic changes
Thrombocytopenia	

of the work has been done in animals, we know little about the ease with which the chronic effects may occur in humans.

PECULIARITIES OF RADIATION INJURY

Radiation injury is a unique situation. With trauma or a heat burn, the injury is due to a direct transfer of energy to tissue. This is not the case with ionizing radiation injury. The amount of energy contained in 1000 Roentgens, about twice the lethal dose of whole body irradiation, is enough to raise the body temperature of man about .002°C. This much energy can be received by walking across the street in the sun.

The objective effects of radiation injury are often delayed. Except for extremely large doses, no immediate result of irradiation is observable. There is a latent period, and the duration depends upon the dose. With moderate doses to the skin, erythema may occur in 1 to 3 days, epilation in about one week, and skin ulceration in 10-20 days. The chain of biological events occurring in irradiated tissue is irreversible. Research on reversal of the effects of radiation is a fascinating subject.

Numerous procedures will reduce the degree of radiation injury if done prior to irradiation. Some of these are hypothermia (7), induction of anemia (8), administration of reducing agents (9), sedation (10), anoxia (11), and semi-starvation (12). In animals, Cortisone seems to increase the degree of irradiation injury (21).

Only living tissue can be damaged by ionizing radiation. Large doses, where there is a direct energy transfer to tissue, will affect dead tissue that is not altered by smaller doses. This is the reason that irradiation can be used to sterilize food. Bacteria may be killed, but the food is not modified. It would seem that once the physical changes occur energy must be supplied for the lesion to develop. This might be analogous to photographic film where an image does not occur after exposure until energy is supplied to develop it.

The concept supported by the findings of Lushbaush and Hale (13) is that there is increased initial oxygen consumption and glucose utilization in the skin of rats for 24 hours following radiation injury. In other injuries, like heat burns, oxygen consumption and glucose utilization drop immediately, then gradually increase as healing occurs (14). Twenty-four hours must elapse before radiation-injured tissue shows the same thing.

Living material must have oxygen and substrates available to survive. A reduction of available tissue oxygen, such as by cyanide (11), will reduce the severity of radiation lesions. Conversely, an increase in tissue oxygen tension, such as may be produced by altitude-induced polycythemia, increases susceptibility to radiation injury (20).

Different tissue varies in its susceptibility to radiation injury. Generally, the more metabolically active tissues are the most sensitive. The skin, bone marrow, gonads, and intestinal mucosa are the most sensitive. Nervous tissue and bone are relatively radio-resistant.

When the metabolic rate of tissue is retarded, such as during hibernation, an increase in radio-resistance develops. Most animals, when given total body irradiation, develop, after a few days, an acute illness with bloody diarrhea, epila-

tion, pancytopenia, dehydration, and possibly death. Frogs show a similar pattern. However, if frogs are irradiated, then placed in an icebox to hibernate, they do not develop this acute radiation syndrome. The onset can be delayed for several weeks. When they are removed from the icebox and no longer hibernate, they develop the acute illness and die.

Irradiation can damage cells without producing morphological changes. When guinea pigs who are immunized against diphtheria receive an intraperitoneal injection of diphtheria culture, leukocytes are found within the peritoneal exudate within the first few hours, and intensive phagocytosis and bacteriolysis occur immediately. When immunized guinea pigs are first irradiated, leukocytes again appear in the peritoneal exudate, but phagocytosis is slow and bacteriolysis is much delayed, often for several days. Thus, irradiation diminishes the effectiveness of previous immunizations (6).

The degree of radiation injury is independent of the dose-rate within wide limits. Usually with trauma, such as heat burns, the faster a dose is received the more severe the injury. We are all familiar with flash burns. With radiation injury, 500 Roentgens will produce about the same effects if received over a period of 30 minutes or one second.

RECOVERY OF TISSUE FROM RADIATION INJURY

If not dealt a lethal blow from the start, cells and tissue appear to recover a part of their vitality. Ellinger describes a true recovery (total recovery, both morphological and functional, of the cell) and a pseudo-recovery (hyperplasia of surviving cells) which is the usual phenomenon (16).

Sub-lethal doses of ionizing radiation have two effects on cells—damage and inhibition of the ability to divide. Functions of growth are less depressed. Large and atypical cells have been reported in human thyroid glands as long as eight years after Iodine-131 therapy (17). Irradiated microorganisms continue to grow, developing large and bizarre forms, but cell division is markedly diminished. Since most healing of wounds occurs by proliferation, it is easy to postulate why radiation injuries, such as skin ulcerations, persist for many months. Repair by proliferation of cells is inhibited.

UNITS OF RADIATION DOSAGE

Roentgen: This unit was adopted by the Radiological Conference of 1937 as a standard for expressing quantities of X and gamma radiation. It is the quantity of X or gamma radiation that will produce one electrostatic unit of charge, either positive or negative, from one cubic centimeter of air.

REP (Roentgen equivalent, physical): This unit was adopted to express tissue dosage. One gram of air will absorb 83.5 ergs of energy from one Roentgen. However, tissue, being more dense, will absorb about 93 ergs. The REP is that quantity of any ionizing radiation which is sufficient to cause soft tissue to absorb 93 ergs of energy per gram.

RAD (radiation absorbed dose): This new unit was adopted because of the number of variables in the REP. Various tissues, such as brain, bone, and subcutaneous tissue, vary in density, giving results ranging from 63 to 100 ergs/gram. One RAD represents an energy absorption of 100 ergs for one gram of any type of tissue.

REM (Roentgen equivalent, man): This unit was designed to compensate for the differences in ionization and energy transfer of the wide variety of radiations encountered today. It is the quantity of any type of radiation which produces the same biological effects in man as one Roentgen of X or gamma radiation.

PUBLIC HEALTH CONSIDERATIONS ABOUT RADIATION INJURY

This popular subject is confusing because various authorities, besides having diverse opinions, may be talking about different matters.

The LD_{50} for humans is about 500 RAD total body irradiation. For 100 RAD, no more than 15% of people would be sick and probably no one would die.

The Federal Civil Defense Administration has a rule for disaster situations. A Civil Defense team may be exposed to 25 Roentgens a day for 8 days (22).

The Atomic Energy Commission regulations list the maximum permissible weekly dose for people who work with

TABLE II
PERMISSIBLE WEEKLY DOSE

Conditions of exposure		Dose in critical organs (mrem)			
Parts of Body	Radiation	Skin, at basal layer of epidermis	Blood forming organs	Gonads	Lens of eye
Whole body	Any radiation with half-value-layer greater than 1 mm of soft tissue.	600[1]	300[1]	300[1]	300[1]
Whole body	Any radiation with half-value-layer less than 1 mm of soft tissue.	1,500	300	300	300
Hands and forearms or feet and ankles or head and neck.	Any radiation	1,500[2]			

[1]For exposures of the whole body to X or gamma rays up to 3 mev, this condition may be assumed to be met if the "air dose" does not exceed 300 mr, provided the dose to the gonads does not exceed 300 mrem. "Air dose" means that the dose is measured by an appropriate instrument in air in the region of highest dosage rate to be occupied by an individual, without the presence of the human body or other absorbing and scattering material.

[2]Exposure of these limited portions of the body under these conditions does not alter the total weekly dose of 300 mrem permitted to the blood forming organs in the main portion of the body, to the gonads or to the lens of the eye.

radioactivity. These are listed in Table II.

Both of these rules were adopted to prevent or reduce the possibility of any significantly harmful effects occurring to an individual. The possibility of genetic changes is disregarded because the number of people involved is small. Table V shows, for comparison, radiation doses received during some common x-ray examinations.

For the population at large, the amount of irradiation that should be received is much lower. The National Committee on Radiation Protection and Measurement, a group sponsored by the National Bureau of Standards, has recommended that exposure to the gonads be limited to 14 REM per person from birth to age 30 years. This recommendation is intended to minimize the number of genetic changes. The present estimate of the average dose in this age group is about 4 REM from the natural background plus 5-6 REM from medical x-rays, leaving the average exposure well below the permissible dose.

Some things known about radiation-induced genetic changes are:

1) It is definitely known that ionizing radiation will cause genetic changes. For the fruit fly, 30 to 80 R to the entire population doubles the mutation rate (18).
2) No genetic changes are passed to the offspring unless the gonads of the parent are irradiated.
3) Genetic changes may occur in future generations rather than the immediate offspring because most mutations are in recessive genes (23).
4) Most genetic changes are harmful.
5) There is no recovery from radiation-induced genetic changes, and these changes are unknown to the subject.
6) The frequency of genetic changes is directly proportional to the total dose of radiation.

The unknown factors are:

1) The manner of expression of the mutations; that is, what congenital malformation would predominate—epilepsy, mental deficiency, defects in vision, etc.
2) How much radiation can the population as a whole be expected to tolerate reasonably.

There is little or no valid information about genetic effects of ionizing radiations in man, but it is reasonable to suppose that they would follow the patterns found in animal studies.

The human race has arrived at its present state as a result of mutations, but natural selection has eliminated many less desirable mutations. The relationship be-

tween radiation dose and increase in mutations is expressed by the term "doubling dose". This is the dose that would eventually cause a complete doubling of gene mutations. It is not known for humans. The probability is that it lies between 30 and 80 RAD (23).

The best estimates of the amount of radiation received by man from all sources were prepared by a committee of the National Academy of Science in 1955-56. The committee found that the body as a whole and the gonads of the average United States citizen received a total of 10 Roentgens from birth to age 30 years. The sources of this radiation are shown in Table III. The population in

TABLE III
SOURCES OF RADIATION EXPOSURE

Natural background (cosmic rays, internal radioactivity, earth, housing)	3-4 Rem
Medical and dental x-rays	6 Rem
Fallout	.4 Rem
Approximate total	10 Rem

North America and Europe receives more radiation than others because of the use of x-ray (Table IV).

TABLE IV
FROM NATIONAL COMMITTEE ON RADIATION PROTECTION AND MEASUREMENT

Recommended average exposure maximum from birth to age 30 years	= 14 Roentgens
Average exposure in this country to age 30	= 10 Roentgens
Average exposure in Africa and Asia	= 5 Roentgens

TABLE V
DOSAGES OF RADIATION RECEIVED DURING SOME COMMON X-RAY EXAMINATIONS

Chest x-ray (14 x 17)	.05 Roentgen
Chest x-ray (small film)	.1 Roentgen
G.I. Series	15 to 40 Roentgens
I.V. Pyelogram	3 to 5 Roentgens

CONCLUSIONS

Radiation injury is a unique situation and unlike any other injury. Its acute effects can be reduced by certain procedures, such as the administration of reducing agents and anoxia, if these are done prior to irradiation. Once a harmful amount of radiation is received, its effects are inevitable. Means of inhibiting genetic effects are unknown.

The controversial features concern the uncertainties of its chronic effects; mainly, shortening of life span and genetic effects. Some authors consider the potential genetic effects as relatively minor. Ninety-nine per cent of damaging mutations are recessive. Everyone carries a natural load of harmful recessive genes, and the addition of a few more may be inconsequential.

Facts about a shortened life span in humans are meager. It has been reported that radiologists have an average life span of 5.2 years less than physicians not exposed to radiation. However, most of these were the older radiologists who worked with x-rays before the harmful effects were fully appreciated. In young animals, the life span is shortened on the average of 3% per 100 R, and the relationship between reduction in remaining life span and dose is linear. Perhaps the most widely accepted chronic effect of irradiation is the acceleration of physiologic aging (19).

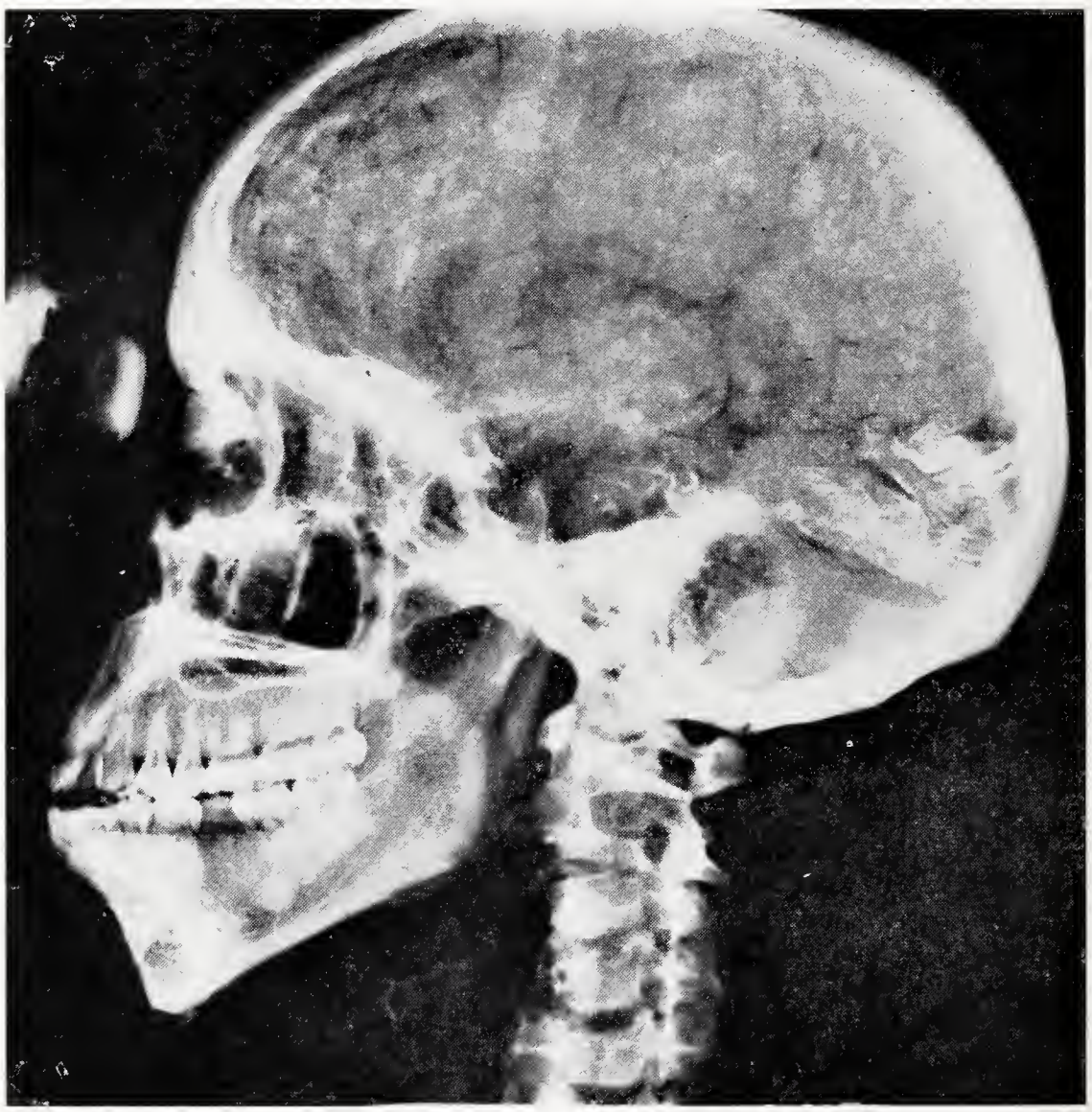
The potential hazards from radiation will increase in the future with the expanding use of nuclear reactors for power, but the benefits will probably outweigh the hazards. A parallel might be made of the use of automobiles. With 40,000 deaths in this country each year attributed to the use of automobiles, the average life span is reduced by about six months. However, this does not induce us to give up the benefits of the automobile.

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What Is Your Diagnosis?



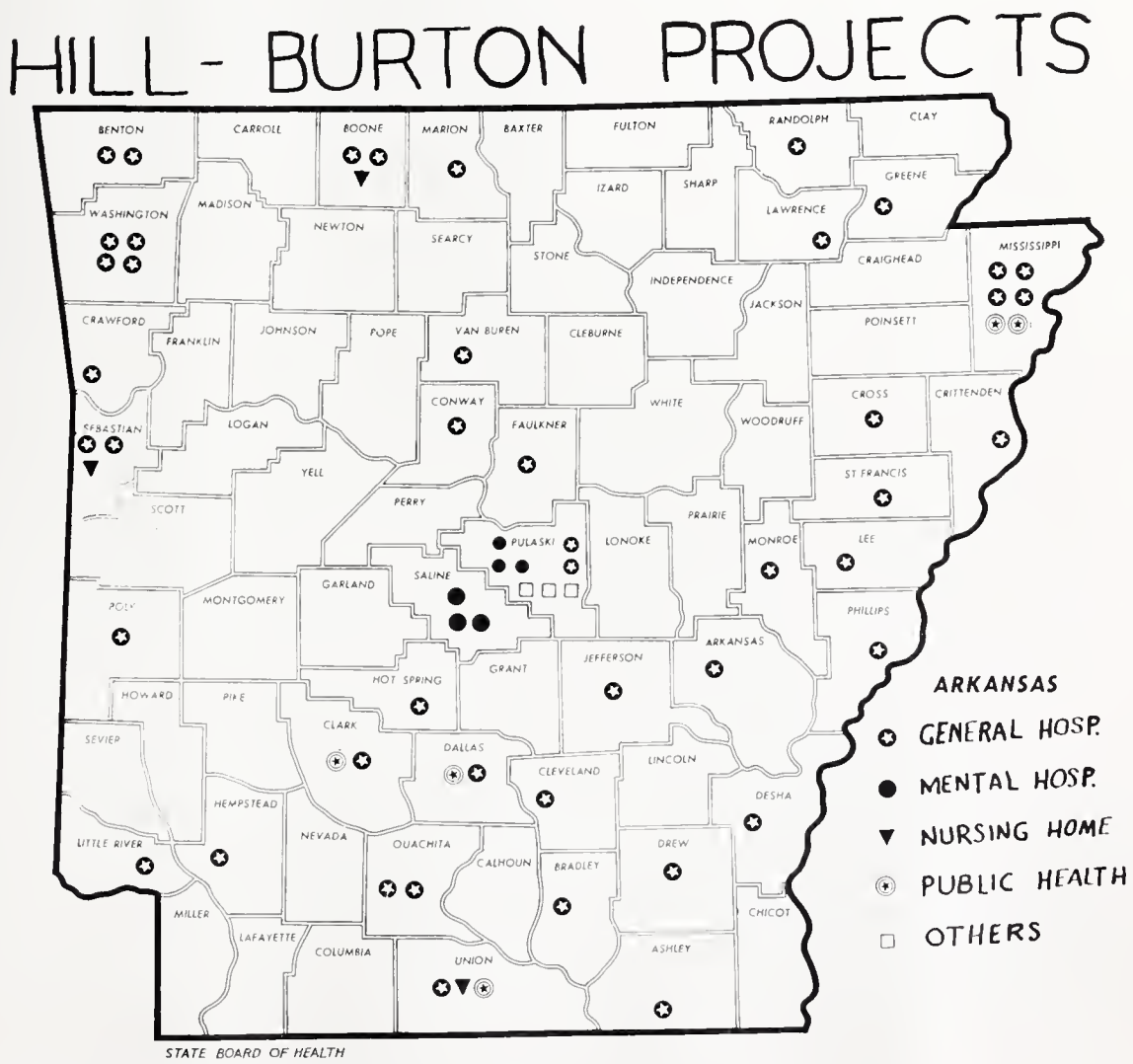
FOR ANSWER SEE PAGE 329

Arkansas Public Health at a Glance

Throughout the nation the shortage of money during the depression years and the shortage of building materials, labor and abnormal conditions during World War II had resulted in very little hospital construction for many years. This prolonged lack of construction, plus the increasing population, along with the increase in hospital usage resulted in an acute shortage of hospital facilities.

As early as 1943 the American Hospital Association and the American Medical Association came to realize that local communities would never be able to provide up-to-date medical care. Having arrived at this decision, these associations took the problem to Congress. Senator Lester Hill of Alabama and Senator Harold Burton of Ohio agreed to sponsor a bipartisan bill designed to help communities help themselves in getting new hospitals where they were needed. In writing this legislation, every possible safeguard for the private practice of medicine was incorporated. For example, any participation in or interference by federal officials in the operation of hospitals constructed with federal aid was specifically prohibited. This means that each facility constructed under the program is free to conduct its own affairs without outside interference.

This bill was enacted into law on August 13, 1946. The Division of Hospitals of the Arkansas State Board of Health was designated as the agency to administer the Hill-Burton program in this state. Under a system of priorities designed to give first consideration to areas of greatest need, there have been 3,617 new beds constructed in general or mental hospitals, nursing homes, and other treatment centers throughout the state between 1947 and July 1, 1959. Funds have also been used to construct five public health centers and to make major "nonbed" additions to five existing hospitals. The total cost of this construction has been $52,806,075.23. Of this, the federal government has contributed $27,745,-218.59.



Editorial

The Surgery of Coronary Insufficiency

Alfred Kahn, Jr., M.D.

The rapid development of cardiac surgery has had a beneficial effort on Medicine as a whole. It has made the profession think in terms of physiology and anatomy of the heart.

A type of heart disorder recently under much investigation is that of pain from coronary artery insufficiency. The relative coronary blood flow is inadequate to meet the heart's metabolic needs. Since it is difficult to diminish the heart's metabolic needs, attention has been directed to surgical means of increasing myocardial muscle perfusion. The results of these procedures are difficult to estimate because an early increase in myocardial perfusion does not mean the effects will be lasting. Ligation of the internal mammary arteries has been advocated as a means of increasing myocardial perfusion. Rowe et al. (New England Journal of Medicine Vol. 261, p. 653, September 24, 1959) have investigated this procedure in an ingenious fashion. Into 5 patients with severe angina pectoris, a cardiac catheter was emplaced in the coronary sinus and a needle was put into a peripheral artery. By appropriately measuring gaseous exchanges in combination with measurements from the cather and arterial needle, they obtained the following information: Coronary sinus blood oxygen content, cardiac index, work index of the left ventricle, coronary blood flow, cardiac metabolic rate for oxygen, cardiac respiratory quotient, coronary vascular resistance, and index of efficiency. These indices were measured before and after ligation of the internal mammary arteries. The significant findings were that ligation of the internal mammary artery failed to produce a change in the coronary blood flow or the coronary sinus oxygen content. The effect of ligation of the internal mammary arteries must be placebo. This is not an unusual situation in medicine or surgery. What effect other than placebo is the relief of ulcer pain by a gastroenterostomy without a vagotomy or other additional surgery to lower the stomach's acid making ability?

Perhaps the most certain way of increasing coronary artery blood flow in the presence of atheromatous disease with a segmental obstruction is to perform an endarterectomy. Longmire, Cannon, & Kattus (New England Journal of Medicine, Vol. 259, p. 993, November 20, 1958) first reported this procedure. Under direct vision and using special instruments they incise the coronary artery and strip out the internal core. This artery is then resutured. Manifestly if the atheromatous disease had produced multiple obstructive areas this type of surgery could not be performed. Actually, the operation was based on several premises:— "that the patient with severe angina pectoris is likely to have complete occlusion of at least one of the 3 major coronary branches; that the occlusive process is likely to be located near the aortic origins of these vessels; that the distal coronary tree beyond the occlusion is likely to be patent and supplied with blood through anastimotic channels." The permanent patency of a vessel in which an endarterectomy has been performed can not be yet proved.

Beck has pioneered much work in cardiac surgery. His principal field of interest has been in coronary disease, and much of this is reviewed in Annals of Surgery, Vol. 145, p. 439, April 1957. His concept is that arterio-sclerosis produces oxygen differentials in adjacent areas of the myocardium and this in turn sets up an electrically unstable heart which will fibrillate and produce death; death resulting from fibrillation is just one mode of terminus from atheromatous disease—one may die as the result of infarction or of a pumping failure. In any event, Beck and his group have studied the problem of defective coronary circulation from a surgical approach. Beck feels that the procedure of attaching a graft of muscle, lung, fat, etc. to the heart is of some bene-

fit; probably not from new vessels from the graft to the heart but from an inflammatory reaction opening up intercoronary arterial channels. Beck was unable to prove consistent benefit in humans from another type of surgery in which the aorta was anastimosed to the coronary sinus by a graft of vein. Beck has reported trials with operations devised to redistribute blood in the heart; he ultimately concluded that this was the best procedure and recommended the placing of asbestos powder in the pericardial sac together with a fat graft to the heart surface; this surgery causes the opening of interarterial channels in the myocardium.

An outstanding review of coronary blood flow with a discussion of coronary artery surgery has been written by Sabiston & Blalock of the Johns Hopkins University School of Medicine. The determinants of the blood flow through the coronaries are: (1) The coronary artery pressure. Although increased pressure means increased flow, increased pressure also means increased cardiac work. (2) Lumen size. Resistance and other factors keep this from being a "straight line relationship". (3) Effect of ventricular contraction. Systolic intramural pressure decreases coronary flow. (4) Oxygen tension. Anoxia is a powerful coronary vasodilator. (5) Viscosity. Due to a variety of factors the heart is favored in hypothermia anesthesia. (6) Presence of intercoronary collateral vessels. Only 9% of humans have sizeable intercoronary vessels, thus this does not seem important. Based on these anatomical and physiological considerations, experiments in revascularyzation of the heart are discussed. The success or failure can be measured by the number of subjects surviving experimental anterior coronary artery occlusion or measuring of back flow. (1) Cardiopexy and Poudrage. The authors report 80% survival in dogs with anterior coronary artery ligation after this procedure; the expected survival without the protective procedure would be 30%. (2) Implantation of a systemic artery into the myocardium. The protection afforded subsequent survival after coronary artery ligation was 64% as opposed to an expected 30% survival rate without the protective operation; measurements of coronary blood flow, however, showed almost no change. (3) Systemic coronary artery anastimosis. A technically difficult procedure with a high immediate mortality. (4) Internal mammary ligation. There is no protection from subsequent anterior coronary ligation by this procedure. (5) Direct coronary endarterectomy. A feasible operation which the authors feel offers much promise.

The surgical attack on coronary artery disease is in its infancy but obviously has much to offer in properly selected cases. The two big problems are to select the proper cases for surgery and to select the proper operation for the case. Poor case selection and unproved operations will bring this field into disrepute. Coronary artery disease can in many instances be helped by our present surgical methods.

MEDICINE IN THE NEWS

New Executive Secretary of the American College of Physicians

The Board of Regents of the College announces the appointment of Dr. Edward C. Rosenow, Jr., of Los Angeles, California, as the Executive Director of the American College of Physicians to take office on January 1, 1960. He will succeed Mr. Edward R. Loveland, F.A.C.P. (Hon.) who is retiring on December 31, 1959, after nearly thirty-four years of service as the Executive Secretary of the College.

Dr. Rosenow, born in Chicago in 1909, holds the degrees of B.A. (1931) from Carleton College; M.D. (1935) from Harvard Medical School, and M.S. (Med.) (1939) from the University of Minnesota, Mayo Foundation. He practiced Internal Medicine in Pasadena from 1940-1957. He held an appointment as Clinical Professor of Medicine at the University of Southern California School of Medicine. He was a member of the attending staff of the Los Angeles General Hospital and of Huntington Memorial Hospital in Pasadena.

Income Tax Information

Members who attend a convention as delegates from their local or state chapters, or as representatives of their national association, may not deduct the expenses unless they can show that such attendance was in the interest of their own business or professional practice. A ruling to that effect (Rev. Rul. 59-316) was published on September 28 by the Internal Revenue Service. The case in point involved a lawyer who was allowed deductions for expenses paid in attending a meeting of the American Bar Association, but was denied deductions for expenses paid by him as a member of a special committee in making a trip to Europe to study and report on criminal procedure and law enforcement. "The purpose of the trip," IRS held, was not to educate himself but to get information for the Bar Association.

Hereafter, the ruling made plain, "the allowance for deductions for convention expenses as business expenses will depend on whether the relationship between the taxpayer's trade or business and his attendance at the convention is such that by his attendance he is benefiting or advancing the interest of his trade or business. One method of determining whether such a relationship exists is to compare the individual's duties and responsibilities of his own position with the purpose of the meeting as shown by the program or agenda."

* * *

A meeting to organize an Arkansas Chapter of The Arthritis and Rheumatism Foundation was held in Little Rock on December 2nd. Arkansas is one of the few states that does not have an organized Chapter and it was the purpose of this meeting to establish steps toward establishment of full-fledged activities building into a service organization for the Arkansas arthritic.

Funds raised are divided 64 per cent local with 36 per cent national for research and overall program, among highest percentage all agencies of local retention for community needs. Funds available amount to $1,414.10 when chartered, representing 64 per cent of 3-year Federal Service Campaign, combined 9-agency government solicitation held 1st three months annually.

The Case of Dr. Frank Rigall vs. The Washington County Med. Soc.

On November 9th, the Supreme Court of the United States dismissed the appeal of the Elizabeth Hospital from the action of the United States Court of Appeals of the 8th Circuit which had dismissed an action by the Elizabeth Hospital against the Washington County Medical Society and Drs. Fount Richardson, Friedman Sisco, Ruth Ellis Lesh and Stanley Applegate. Thus is brought to an end the second attempt by Dr. Frank Riggall of Prairie Grove, Arkansas, to compel the Washington County Medical Society to admit him to membership.

In the first of these cases, Dr. Riggall sued the Washington County Medical Society and the named doctors in his individual name, alleging that because he

treated patients from various states he was practicing medicine in interstate commerce and was, therefore, entitled to invoke the provisions of the Sherman Anti-Trust Act and to sue in Federal Court. Eugene R. Warren, attorney for the Arkansas Medical Society, represented the Washington County Medical Society and the individual physicians. On motion by the Washington County Medical Society and the individual doctor defendants, the United States District Court dismissed Dr. Riggall's complaint. Dr. Riggall appealed to the Court of Appeals for the 8th Circuit. For a number of years organized medicine had attempted to obtain a ruling by the court that the practice of medicine was not trade and commerce under the Sherman Anti-Trust Act and that a physician was not practicing in interstate commerce simply because he might have treated patients who came from other states. The Court of Appeals in its decision decided both of these questions of law favorable to organized medicine and affirmed the action of the United States District Court in dismissing Riggall's complaint. Dr. Riggall then appealed to the United States Supreme Court and this court also dismissed his appeal and upheld the decision of the United States Court of Appeals.

The Elizabeth Hospital, Inc., a Delaware corporation, which is owned by Dr. Frank Riggall, Eva E. Riggall, Cecil Riggall and Robert Douglas Manning, then filed a similar action against the same defendants in the United States District Court. The plaintiff alleged that since it was a corporation, the Federal Court had jurisdiction by diversity of citizenship and also that it was doing business in interstate commerce because of number of its patients came from other states. It alleged a conspiracy by the members of the Washington County Medical Society to injure it, principally because of the denial of membership in the Washington County Medical Society to Dr. Frank Riggall. Again, Eugene R. Warren, representing the Washington County Medical Society and the individual physicians filed a motion to dismiss the complaint and dismiss the case on the grounds that the Sherman Anti-Trust Act had no application to the facts as alleged in the complaint. There were other allegations that under the Arkansas law a civil conspiracy had been entered into and that a monopoly had been created by the Washington County Medical Society. The plaintiff sought damages in the amount of $300,000 and an injunction requiring the Washington County Medical Society and the American Medical Association to admit Dr. Frank Riggall to membership therein. The United States Court held that the hospital, although a corporation, was still not engaged in interstate commerce even though it furnished hospital services to people who came from out of the state. It further held that it was not a violation of the Arkansas law for a member of a medical society to vote not to admit a person to that society and, therefore, it was not a violation of the law for a group of persons to exercise their right to vote to exclude a person from the society. The Federal Court pointed out that the By-Laws of the medical society provided that the society should be the sole judge of the qualifications of its members and that all members should vote upon applications by secret ballot. The court refused to disturb the action of the medical society. It further re-affirmed the prior decision in the Riggall case holding that the Sherman Anti-Trust law had no application to matters purely local in character and that the operation of a hospital was purely local in character. It further held that the practice of a medical profession is neither trade nor commerce within Section 1 of the Sherman Anti-Trust Act. Dr. Riggall appealed to the United States Court of Appeals which re-affirmed its prior decision and affirmed the action of the United States District Court in dismissing the complaint. The Elizabeth Hospital then appealed to the United States Supreme Court which on November 9th dismissed the appeal and affirmed the lower court's decision.

From the Washington Office of the American Medical Association

Washington, D. C.—A special committee of consultants to the Federal government has recommended what was termed an urgent, essential program designed to

maintain the present ratio of physicians in a sharply expanding population.

Dr. Leroy E. Burney, Surgeon General of the Public Health Service, gave his personal approval to the recommendations made by his 22-member Consultant Group on Medical Education after about a year's study. But he said he couldn't indicate yet "the extent to which they can be incorporated" in next year's proposals of the Department of Health, Education and Welfare.

The Consultant Group recommended expansion of existing medical schools and construction of 20 to 24 new ones with Federal help, federal scholarships for medical students, and greater efforts in the field by states, local communities, foundations, individuals, industry and voluntary agencies.

The Group said the present ratio of 133 doctors of medicine and eight doctors of osteopathy per 100,000 population is "a minimum essential to protection of the health of the people of the United States."

To maintain this ratio the Group said, "the number of physicians graduated annually by schools of medicine and osteopathy must be increased from the present 7,400 a year to some 11,000 by 1975—an increase of 3,600 graduated.

"To meet the country's need for physicians for medical care, teaching, research and other essential purposes will require an immediate and strenuous program of action by the nation as a whole," the Group's 95-page report stated.

"This program must safeguard and improve the quality of medical education as well as bring about the needed substantial increase in the number of physicians."

The No. 1 recommendation of the Group was for the Federal government to appropriate over the next 10 years funds—estimated at about $500 million "on a matching basis to meet construction needs for medical education," including necessary teaching hospitals.

"The Consultant Group is convinced that the nation's physician supply will continue to lag behind the needs created by increasing population unless the Federal government makes an emergency financing contribution on a matching basis toward the construction of medical school facilities," the report said.

The Group also said research grants to medical schools "should cover full indirect costs so that medical schools are properly reimbursed for the contribution of medical education to medical research."

These two recommendations were in line with American Medical Association positions on the matters.

The Group also urged "more generous public and private support for the basic operations of medical schools." Such support, the report added, "must come from many sources, including state and local appropriations, endowments, gifts and grants, universities, and reimbursement for patient care."

Most of the consultants were physicians or educators. They included Dr. Julian Price of Florence, S. C., a member of the AMA Board of Trustees, and Dr. Edward L. Turner, Director of the AMA Division of Scientific Activities.

Highlights of the Group's report included:

—To maintain the present physician-population ratio, the expected 1975 population of 235 million will require a total of 330,000 doctors of medicine and osteopathy.

—There also must be 12,000 entering students in 1971, as against about 7,600 a year now.

—"In a very real sense, the needs for physicians cannot be met by numbers alone. They will be met only as an expanded program maintains and enhances the quality of medical education."

—The entry of more physicians into research, industrial medicine and similar activities "has made possible much of the progress of modern medicine." But it also has resulted in "relatively fewer physicians devoting full time to patient care."

* * *

Top figures in the medical profession congregated in the Lafayette Hotel, Little Rock, Arkansas, for the 12th annual assembly of the Arkansas Academy of General Practice. The conference got under way with lectures handled by physicians including Dr. C. Arden Miller of the University of Kansas Medical Center, Dr. Louis F. Rittelmeyer of the University of Mississippi, Dr. William A. Hudson of

Detroit, and Dr. Leo W. Fabian of the University of Mississippi.

Dr. Edward A. Marshall of Cleveland, Ohio, attended through the courtesy of the Wyeth Fund for Post Graduate Medical Education.

* * *

A joint medical-legal meeting was held in Hot Springs in the Circuit court room at the courthouse.

A film, "The Doctor Defendant" was shown and there was a discussion on a proposed medical witness fee schedule.

* * *

The cities of Hot Springs and Little Rock were hosts to the Nation's women physicians at a convention held November 12-16. The occasion was the annual mid-year meeting of the American Medical Women's Association which opened November 12 at the Arlington Hotel in Hot Springs.

Dr. Ann Appelbaum, staff psychiatrist at the Menninger Clinic, Topeka, Kansas, was one of the principal speakers.

Dr. Eva F. Dodge, associate professor of Obstetrics-Gynecology at the University of Arkansas Medical Center was in charge of convention arrangements.

At the April meeting of the Arkansas Chapter of the American Academy of Pediatrics, announcement was made of the election of the following officers: State Chairman: Schuler McKinney, M. D., El Dorado; Alternate State Chairman: Thomas Townsend, M. D., Pine Bluff; Secretary-Treasurer: James O. Cooper, M. D., El Dorado; Members at Large: Vida H. Gordon, M. D., Little Rock, and Joseph Rosenzweig, M. D., Hot Springs. Dr. McKinney and his co-officers will serve until October 1962.

* * *

Representative Wilbur Daigh Mills and Mrs. Mills of Kensett were the honored guests Sunday, October 25th, at a tea given by the Second District Medical Society at the Batesville Country Club.

Mr. Mills is one of the top Democratic tax experts in the House of Representatives. As Chairman of the House Ways and Means Committee, which originates all federal revenue measures, he also has a considerable voice in the formulation of tariff and social security measures.

A large number of people attended the tea to meet the Congressman and his wife in an informal atmosphere.



Receiving line and a few guests: L to R; Dr. J. Kolb (Pres. A.M.S.), Dr. Paul Gray, Mrs. Dorothy Gray (Pres. Aux. to A.M.S.) talking to Mrs. Roy Row, (Batesville) an unknown man. Mrs. Wilbur Mills (Polly), Hon. W. D. Mills greeting Mr. Roy Row, mayor of Batesville. Dr. J. J. Monfort, Mrs. J. J. Monfort, greeting Mrs. and Mr. Gene Boylan.

In the receiving line were Dr. J. J. Monfort, president-elect of the state society, and Mrs. Monfort; Mr. and Mrs. Mills; Dr. James Kolb, president of the State Medical Society, and Mrs. Kolb, Clarksville; Dr. C. C. Long, councilor to the State Medical Society, and Mrs. Long, who is president-elect to the State Medical Auxiliary, Ozark; Dr. Hugh Edwards, councilor from the second district and Mrs. Edwards of Searcy; Dr. Charles Archer, councilor for the second district, and Mrs. Archer of Conway, and Dr. and Mrs. Paul Gray. Mrs. Gray is president of the Medical Auxiliary.

Two past presidents of the Arkansas State Medical Society, Dr. Sam Albright of Searcy and Dr. O. J. T. Johnston of Batesville were present.

ANNOUNCEMENTS

The Mid-South Postgraduate Medical Assembly will be held February 9, 10, 11, 12, 1960, at the Peabody Hotel, Memphis, Tenn.

International Course in Reconstructive Nasal Surgery

An international course on "The Fundamentals of Reconstructive Surgery of the External Nasal Pyramid and the Nasal Septum" will be presented in Mexico City, July 4-15. It will be under the auspices of the Escuela Nacional de Medicina e Division del Doctorado, and with the co-operation of the American Rhinologic Society.

Sectional Meeting in Louisville, Kentucky, January 21-23, 1960

Surgeons and related medical personnel are invited to attend the three-day Sectional Meeting of the American College of Surgeons in Louisville, Kentucky, January 21 through 23, 1960. Headquarters will be The Brown Hotel. This is the first College meeting in Louisville since 1950.

The State Society headquarters office has been informed that it is required to report to the Internal Revenue Service the names of each physician participating in the Medicare Program who has been paid $600 or more during a taxable year.

The 6th International Congress of Internal Medicine takes place in Basel, Switzerland, from August 24 to 27, 1960.

The Eleventh Annual Postgraduate Course in MEDICAL TECHNOLOGY will be offered on January 25, 26 and 27, 1960 at the University of Kansas Medical Center.

Outstanding guest speakers will discuss the microbiological examination of biopsy tissues, hidden clues in the peripheral blood smears, and facts about the diagnostic sticks, tapes and tablets. Registrants will have an opportunity to participate in six of twenty-eight different workshops during the three-day period; for example, Instrumentation, Fluorescent antibody techniques, Coagulation studies, Quantitative urine cultures, Automation devices, Microchemistry, Atypical antibody detection.

Postgraduate Assembly in San Antonio

The 24th Annual Session of the International Medical Assembly of Southwest Texas will be held in San Antonio, Texas, January 25-27, 1960 at the Hilton Hotel.

In addition to the scientific program, there will be many social events for the physician and wife. Those interested in receiving further information or in registering may write Dr. A. O. Severance, President, or Mr. S. E. Cockrell, Jr., Executive Secretary, 202 West French Place, San Antonio 12, Texas.

Postgraduate Course on Diseases of the Chest

The Council on Postgraduate Medical Education of the American College of Chest Physicians will present the 13th Annual Postgraduate Course on Diseases of the Chest at the Sheraton Hotel, Philadelphia, March 14-18, 1960.

Obituary

Dr. Allie Carl Kolb, 73, 120 Linwood Court, Little Rock, prominent psychiatrist and former superintendent of the State Hospital, died October 29, 1959, in a Little Rock Hospital. He was said to have been attending a patient at the time he was stricken with a heart attack.

He was born on a farm in Lebanon, Sevier County, was graduated from Nashville High School in 1909 and later taught school in Sevier and Pike Counties while attending the University of Arkansas.

He entered the University of Louisville, Ky., Medical School in 1913 and graduated four years later. During World War I he was a member of the Army Medical Corps. Dr. Kolb started his medical practice in Hope. During the depression in 1920-21, he went to Port Arthur, Texas, but returned to Louisville a short time later to serve an internship in a neuropsychiatric sanatorium.

He later returned to Hope and resumed practice in affiliation with his uncle, a physician. Dr. Kolb was named superintendent of the State Hospital in Little Rock from 1935 to 1938 and from 1941 to 1946. He resigned in 1946 to take the position of chief of the Neuro-Psychiatric Unit of the Veterans Administration Hospital on East Roosevelt Road.

Dr. Kolb sponsored legislation for the care and treatment of the mentally ill while he was head of the State Hospital. Among the laws he backed are Act 3 of 1937, the insanity plea.

Dr. Kolb served as a clinical professor of psychiatry at the University of Arkansas School of Medicine and the Law School. He was a member of the Pulaski County, Arkansas, and American Medical Societies, the Mid-Continent Psychiatric Society. He was a Fellow of the American Psychiatric Association and a diplomat of the American Board of Psychiatry and Neurology.

Survivors include his widow, Mrs. Amanda Payton Kolb; a son, Dr. William Payton Kolb of Little Rock; two brothers, E. R. Kolb of Dallas and M. C. Kolb of Texarkana; two sisters, Mrs. Louise Haley of Little Rock and Mrs. B. E. Derden of Houston and two grandchildren.

Dr. James Oliver Cotton, aged 86, of 107 Emily Street, North Little Rock, a physician of Leslie for 62 years, died October 12 at a Little Rock Hospital.

Dr. Cotton began his practice at his home in Leslie in 1899 after his graduation from Barnes College, St. Louis, which is now Washington University.

He was as active in civic affairs as he was in his profession. He founded the first drug store in Leslie in 1903, and served as city treasurer for many years.

Among the honors he had received was a 50-year pin from the Arkansas Medical Society.

He was a Mason, a Methodist, a member of the Arkansas Medical Society, American Medical Association and past president of the Searcy County Medical Society.

Survivors include his widow, Mrs. Sally Thomas Cotton; a son, Olney Cotton of North Little Rock; a daughter, Mrs. Oscar Nichols of North Little Rock; a sister, Mrs. Charles Stephenson of Oklahoma City; a granddaughter and three great-grandchildren.

Personals and News Items

Dr. Thomas Wortham, Jacksonville physician, has been elected to the Jacksonville State Bank's Board of Directors. Dr. Wortham has been in practice at Jacksonville with Dr. Jan W. Crow since January 1957.

Announcement was made by Dr. Sam V. Daniel of the opening of his office in Conway where he will practice medicine and surgery. Dr. Daniel received a bachelor of science degree from the University of Arkansas and in 1956 was graduated from the University Medical School in Little Rock. He interned at the University of Texas Medical Branch Hospital in Galveston.

Dr. Dale Alford, 5th District Congressman, has accepted an invitation to address an annual medical gathering at the Harvard University Medical School on November 20th. He will speak on "A Congressman Looks at Medical Care."

Captain Robert Hunt Langston, now serving as post surgeon of the Pine Bluff Arsenal, will enter the active practice of medicine in Harrison after completion of his military service obligation about January 1st. He will be associated with Dr. A. R. Hammon in offices at 205 West Rush Ave.

Dr. H. T. Smith, 74, who has practiced medicine in McGehee for 50 years, was honored at a program at Hotel Gocio. He is a Fellow of the American College of Physicians, a former president of the Arkansas Medical Society. Dr. Smith has never missed a day of his medical practice because of illness of his own.

The 1960 officers of the medical staff at the Arkansas Baptist Hospital elected recently include Dr. James L. Smith, vice chief; Dr. W. G. Cooper, Jr., chief-elect, Dr. Guy R. Farris, chief; Dr. Walter O'Neal, Secretary, and Dr. John R. Wassell, program chairman.

Dr. Fount Richardson, president of the American Academy of General Practice, was guest speaker at the 12th annual meeting of the Arkansas Academy held October 14th in Little Rock.

Officers elected include Dr. Guy R. Farris of Little Rock, President; Dr. Amail Chudy of North Little Rock, program chairman; Dr. Wayne Workman of Blytheville, vice-president; Dr. Louis A. Whittaker, Jr. of Ft. Smith, president-elect, and Dr. Thomas D. Honeycutt of Little Rock, secretary-treasurer.

Dr. Dale Alford, Congressman from the Fifth District of Arkansas, was a principal speaker at a Legislative Meeting held by the Mississippi State Medical Association in Jackson, Mississippi, November 12th. Dr. Alford shared the platform with the Honorable John Bell Williams of Mississippi.

One of the most modern and well equipped clinics in Arkansas observed its open house Sunday, October 25, in Russellville. The Millard-Henry Clinic has a staff of five doctors. They are, in addition to Dr. Millard, Dr. J. A. Henry, Dr. Ernest King, Dr. R. B. Teeter, and Dr. Charles F. Wilkins.

Dr. Gustavo Berger Reyes, oral medicine specialist from Guatemala City, Guatemala was guest of honor at a meeting of the Garland County Dental Society at Hot Springs. Dr. Reyes is chief of the Department of Oral Medicine at the University of San Carlos.

A Little Rock surgeon, Lt. Col. George R. Steinkamp, began work December 1st as the Air Force's first representative to the new Federal Aviation Agency at Washington.

Dr. R. W. Ratton of Manilla is a patient in the Memphis Hospital. He became ill when returning from a business trip in Memphis.

Dr. J. T. Polk, physician at Keiser for the past 31 years, was honored at a surprise party on his 61st birthday. He was presented with a chair and a lamp by those who were present.

One of the nation's leading psychiatrists, Dr. Milton H. Erickson, of Phoenix, Arizona, addressed a medical-dental seminar on hypnosis in the Arlington Hotel, November 7.

Dr. A. C. Curtis of Washington, authority in the field of Public Health, was the guest speaker for the annual meeting of the Jefferson County Tuberculosis Association November 5th in Pine Bluff.

A Little Rock physician, Dr. W. E. Morris, who is an outstanding churchman, spoke at Trinity Episcopal Church's annual loyalty dinner in Pine Bluff.

Dr. L. H. McDaniel, past president of the Arkansas Medical Society, addressed the Business and Professional Women's Club of Jonesboro at its regular monthly meeting November 3.

Dr. James W. Headstream was a speaker at the recent meeting of the Southwestern Medical Association in Roswell, New Mexico. The subjects presented were "Common Anomalies of the External Genitalia," and "Bladder Neck Obstruction in Children."

The Arkansas State Practical Nurses Association held its four-day 12th annual convention in Blytheville October 29th through November 2nd.

One of the convention highlights was an address by Dr. James M. Kolb of Clarksville, president of the Arkansas Medical Society.

Mrs. Eve Brock of Bearden, president of the Licensed Practical Nurses of Arkansas, presided at the business sessions and banquet.

Dr. Irving I. Secter, a Chicago dentist, spoke to a gathering of physicians, dentists, and psychologists interested in adding hypno therapy as an implement in their various methods of treatment. The three-day meeting in Hot Springs was sponsored by the Arkansas Academy of General Practice.

Dr. George C. Coffey, Hot Springs physician, was guest speaker at the Kiwanis Club in November.

Dr. and Mrs. K. W. Cosgrove took first place in masters pairs of the City of Roses bridge tournament held in Hotel Lafayette on October 29th.

At a dinner meeting held at the El Dorado Country Club, Richard Holt was presented a gift of a $100 bill by Dr. Berry L. Moore, Sr., chief of staff at Warner Brown Hospital, for the Union County Medical Society and Union County Druggists Association in honor of his 30 years services at the hospital as orderly and X-ray technician.

The new medical clinic in Smackover now under construction by Dr. George W. Warren is expected to be opened on January 2nd. The clinic is located at the intersection of the El Dorado highway and Cemetery Road.

Contributors to the American Medical Education Foundation from the state of Arkansas ..... October 1959

Dr. Milton Deneke, W. Memphis	$ 25.00
Dr. Jean Gladden, Harrison	50.00
Dr. John T. Gray, Jonesboro	10.00
Dr. C. D. Gunter, Siloam Springs	25.00
Dr. James D. Huskins, Siloam Spgs.	25.00
Dr. Sanford C. Monroe, Pine Bluff	25.00
Dr. B. J. Puckett, Siloam Springs	25.00
	$185.00

Proceedings of Societies

The women of Carroll County were invited by the American Cancer Society to see a new film that explains how the second leading cancer killer among women can be virtually wiped out with the aid of simple detection examination. These films were shown through the courtesy of the Carroll County Medical Society.

The 114th Semi-Annual meeting of the First District Medical Society was held November 5th at the Kingsway Supper Club in Paragould. Dr. Clark M. Baker of Paragould is president of the group which is composed of physicians in the following counties: Clay, Craighead, Crittenden, Greene, Lawrence, Mississippi, Poinsett and Randolph.

Medical Assistants in Jefferson County Organize

An organization meeting of the Jefferson County Medical Assistants Society was held in Pine Bluff Thursday evening, November 5, 1959, and Mrs. Elaine S. Hunziker was elected temporary chairman. The group adopted a constitution and by-laws, and a nominating committee was named to prepare a slate of officers for submission to the organization at a meeting in late November. Officers will be installed at a banquet session in December, with Mrs. Elza Lee Dunn of North Little Rock, treasurer of the Arkansas Medical Assistants Society, as installing officer.

Senator John L. McClellan was a guest of the Craighead-Poinsett County Medical Society at its meeting on December 1st, Hotel Noble, Jonesboro. The Society met again December 2nd to hear a discussion on "The Diagnosis of Intestinal Obstructions in Infants and Children" by Dr. Eugene Lewis, pediatric surgeon of St. Louis, Missouri.

Office personnel of Pulaski County members of the Arkansas State Medical Society were entertained by the Arkansas Medical Service Representative Society at Coachman's Inn in Little Rock. Edward Oslin, president, greeted the guests, and Mrs. Alfred Ruck, Jr. and Mrs. Edward Mayer served punch.

New Members . . .

A new member of the Boone County Medical Society is **Dr. Rhys A. Williams.** Dr. Williams was born in Mexico, Missouri, and received his pre-medical training with a B.A. degree at Westminster College, Fulton, Missouri. His surgical residency was at the St. Louis City Hospital. Dr. and Mrs. Williams and their two children reside at Harrison, and Dr. Williams is associated with Dr. Jean C. Gladden in the practice of Surgery.

Dr. Charles E. Kemp, has been accepted for membership in the Craighead-Poinsett County Medical Society. A native of Trumann, Arkansas, Dr. Kemp received his preliminary education in Trumann and was graduated from the University of Arkansas Medical School in 1956. He interned and served residency at the St. Louis City Hospital. Dr. Kemp is a Pediatrician with his office at 809 Cobb, Jonesboro.

Woman's Auxiliary

The Woman's Auxiliary of the Boone County Medical Society held its regular monthly dinner meeting at the Hotel Seville in Harrison on November 3rd.

Mrs. William H. Breit, president, presided and there were 11 members present.

Book Reviews

CLINICAL AUSCULTATION OF THE HEART. By Samuel A. Levine, M.D., Sc.D. (Hon.), F.A.C.P., Clinical Professor of Medicine, Emeritus Harvard Medical School; Consultant in Cardiology, Peter Bent Brigham Hospital, Boston; Consultant Cardiologist, Newton-Wellesley Hospital; Physician, New England Baptist Hospital, and W. Proctor Harvey, M. D., Associate Professor of Medicine, Georgetown University School of Medicine and Director, Division of Cardiology, Georgetown University Hospital; Consultant in Cardiology, Walter Reed Army Medical Center, Bethesda Naval Hospital. Second Edition, Illustrated, pp. 657, 1959, W. B. Saunders Company, Philadelphia and London.

This second edition of Levine and Harvey's Clinical Auscultation of the Heart still ranks as an exceedingly important book in the field of cardiology. This is probably the most outstanding textbook on cardiac sounds. Until the past few years, it was impossible to do more than give a graphic representation of cardiac sounds. Good word pictures were presented of the various normal and abnormal cardiac sounds by a number of authors. With the current phonocardiographic instruments, sounds can be graphically recorded and related to the electrocardiographic tracing. The authors used the EKG and phonocardiographic representation throughout their text. It is most effective. The text is well written and easy to read. A book of this sort, supplemented by the new tape recordings of heart sounds, is an invaluable aid in the training of medical students and hospital staff. This book itself is a valuable addition to the library of any internist, general intern or resident and medical student. It is heartily recommended.

DISEASES OF THE COLON AND ANORECTUM. Robert Turell, M.D., Associate Surgeon and Chief, Rectal Clinic, The Mount Sinai and Montefiore Hospitals; Surgeon, Bronx Municipal Center; Associate Professor of Clinical Surgery, Albert Einstein College of Medicine, New York.

Turell's two volume text on the colon and anorectum is complete and inclusive. It is an excellent reference book. The style is easy to read. The format is pleasing. There are numerous excellent illustrations and diagrams. This book has appeal to the surgeon as well as the internist; surgical technique is reviewed. There are excellent descriptions of both simple and complex procedures, for

example, from the excision of a small polyp to the sphincter saving operations for cancer of the colon. This text is heartily recommended as a reference book to any practicing physician.

METABOLIC CARE OF THE SURGICAL PATIENT, by Francis D. Moore, M.D., Moseley Professor of Surgery, Harvard Medical School; Surgeon-in-Chief, Peter Bent Brigham Hospital. Illustrated, pp. 1001, 1959. W. B. Saunders Company, Philadelphia and London.

This textbook is the most complete discussion of the physiology of the surgical patient that has been published in some time. It is written by an eminent author in this field. The book not only has an easy to read index, but case histories with exceptionally good charts included. An interesting addition in the book are notes from the medical literature; for example, in discussing Wounds and Severe Multipule Injuries, the literature was reviewed from data from recent military service and civilian studies. In view of the aging of the population, the chapter on Fractures in the Elderly is particularly meaningful. This book is heartily recommended to general physicians and to all practitioners of medicine. It is also an excellent text for third and fourth year medical students.

Answer to What Is Your Diagnosis?

This 20 year old colored male was well until 8 years before admission when he developed weakness and later faulty vision. He is mentally very subnormal which has gotten much worse in past 1-2 months. A deep erythemata over butterfly area of face was noted by one examiner.

Films reveal the typical calcification following and outlining the convolutional markings over the occipital lobe, radiographically typical of Sturge-Weber syndrome. Areas of calcification are felt to be within hemangiomas of the pia mater. (Air in ventricles is as result of ventriculogram).

TUBERCULOSIS ABSTRACTS

Sponsored by
The Arkansas Tuberculosis Association

THE NATURAL HISTORY OF EMPHYSEMA IN MAN

By Richard V. Ebert, M.D., The American Review of Respiratory Diseases, July 1959.

The clinical course of typical diffuse emphysema is described. Patients with a less typical clinical picture and closely related clinical entities are also discussed.

In describing the natural history of a disease we must first establish a definition. To do this, we classified a group of patients into a category on the basis of one or more common charteristics. Once this is done, the clinical symptoms and course of the disease can be described.

DEFINING EMPHYSEMA

The problem in emphysema lies in the area of definition of the disease and hence classification of patients. If the records of any hospital are scanned, it will be found that the term emphysema is often loosely used and applied to a diversity of clinical problems. Hence, to give any coherent account of the clinical course of the disease, we must establish a rigid definition. The traditional method of classification of emphysema is based on clinical-pathological correlation. This method has severe limitations. The pathology of emphysema is not an all or none phenomenon. One can state with some assurance that a patient has or has not bronchogenic carcinoma or pulmonary tuberculosis. In the case of emphysema the degree of change in the lung may range from a few bullae or dilated air spaces to a condition in which both lungs may be almost entirely replaced by bullae. In emphysema the pathology must be defined quantitatively as well as qualitatively.

There are other problems related to the pathologic definition of emphysema. Most pathologists do not fix the lungs in an inflated state. Hence, the gross and microscopic evaluation of the disease lacks precision. The pathologic process is not accurately reflected in the roentgenogram

and we must await the death of the patient for an accurate appraisal of the changes in the lung.

For these reasons clinicians have begun to rely more and more on a physiologic definition of emphysema. Unfortunately, the data are not available to correlate precisely this physiologic definition of the disease with the pathologic definition.

CLINICAL COURSE

A description of the clinical course of patients with typical diffuse hypertrophic or obstructive emphysema, in essence, differs little from the original description of Laennec. There are patients, however, who present a less typical clinical picture.

The chief symptom of emphysema is dyspnea beginning as exertional dyspnea. The patient notes that his activity is being limited progressively because of shortness of breath. Often this limitation of activity is attributed to aging or loss of physical fitness. Finally the patient is unable to walk even a short distance without being tortured by dyspnea. Episodes of dyspnea occur at rest and are accompanied by wheezing. These acute episodes, often referred to as "asthma," are usually precipitated by an upper respiratory infection. Administration of adequate amounts of antimicrobial drugs usually gives dramatic relief.

Cough is a persistent symptom in most patients with emphysema. The sputum production is greatest following a respiratory infection. Many patients with emphysema have a slight decrease in the oxygen saturation of the hemoglobin of the arterial blood and a slight increase in carbon dioxide tension. There appears to be little correlation between the degree of hypoxia and the severity of the dyspnea.

The most serious threat to the life of the patient with emphysema is the sudden increase in hypoxia and hypercapnia which accompanies an exacerbation of the bronchitis. He has a sudden increase in dyspnea and becomes cyanotic, and often disoriented and confused. Cough and fever may be absent, and secretions accumulate in the trachea and bronchi. Administration of oxygen may lead to improvement, or the patient may lapse into coma as a result of an increase in carbon dioxide tension in the arterial blood and resultant respiratory acidosis. Death may occur if treatment is not prompt and effective.

Right heart failure is commonly found in these patients and is manifested by cardiac enlargement, elevated venous pressure, and hepatomegaly. There is no evidence to indicate that this adversely influences the function of the lungs. The heart failure is usually not chronic but clears when the acute bronchial infection subsides and the hypoxia improves.

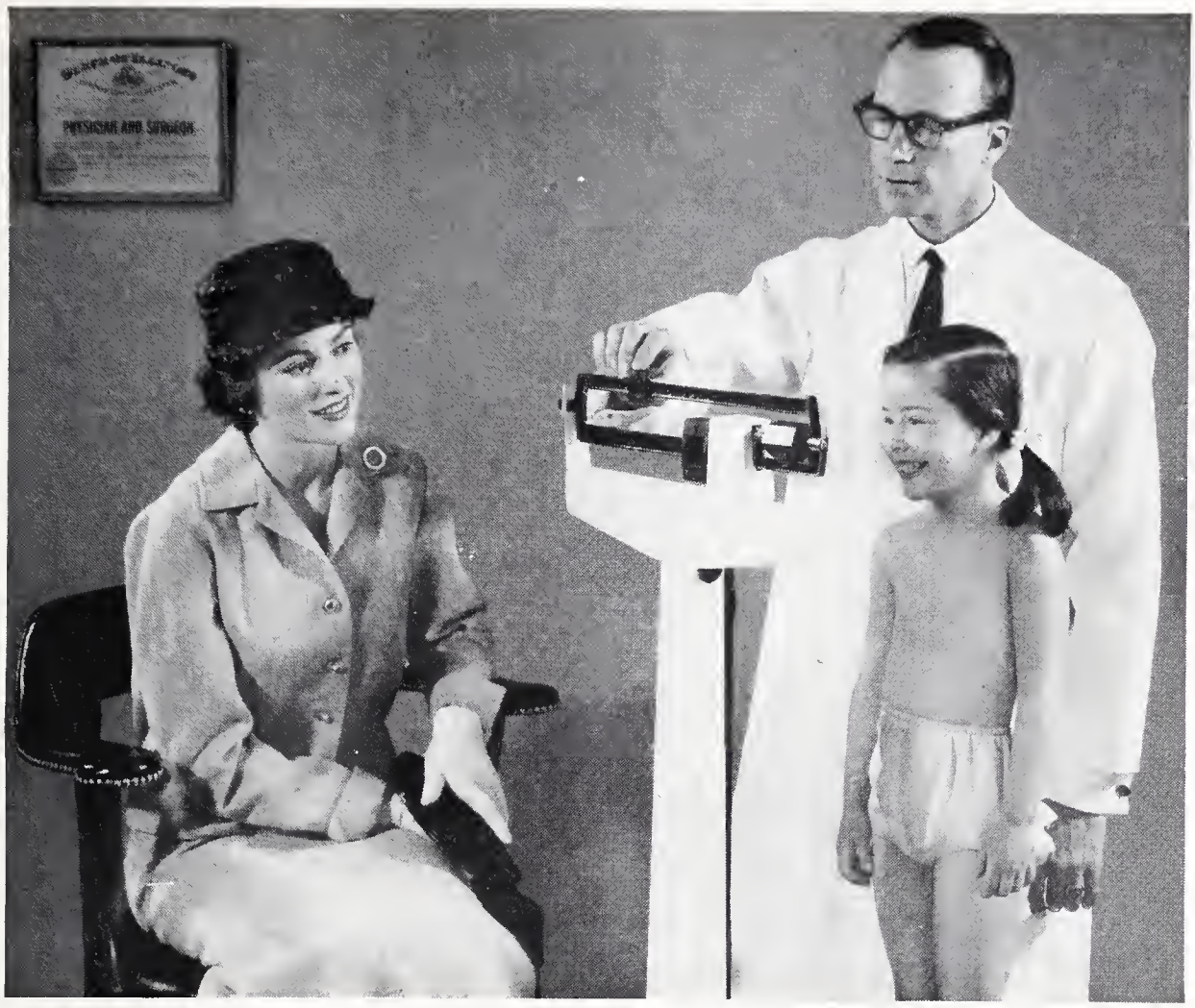
The prognosis of emphysema is not well defined. In part this is related to difficulties of classification and definition. There are a number of patients who apparently have emphysema but who do not follow the classical clinical course just given.

ASSOCIATED CONDITIONS

One of the controversial aspects of emphysema is its relationship to bronchial asthma. A number of patients with typical emphysema will give a previous history of bronchial asthma. The episodes of dyspnea accompanying acute bronchial infection in emphysema are difficult to differentiate from true bronchial asthma. Hence it is difficult to determine whether previous episodes were asthma or bronchitis. The incidence of pulmonary emphysema in patients with known bronchial asthma is also difficult to establish. The relationship between bronchial asthma and emphysema needs further clarification.

A similar problem exists in the relationship between chronic bronchitis and emphysema. It is clear that chronic bronchitis is often associated with pulmonary emphysema and that acute bronchial infection precipitates the more severe episodes of dyspnea and hypoxia.

There also appears to be a relationship between bronchiectasis and emphysema. A mild cylindrical dilatation of the bronchi is found on the bronchograms of many patients with emphysema, but certain patients have the findings of saccular bronchiectasis. The bronchiectasis precedes by some years the symptoms of emphysema. Moreover, a number of patients with severe bilateral bronchiectasis develop pulmonary insufficiency. There also appears to be an undue incidence of diffuse pulmo-



Underweight Children Gain and Retain Weight with Nilevar®

One of the most convincing evidences of the anabolic activity of Nilevar, brand of norethandrolone, has been its ability to improve appetite and increase weight in poorly nourished, underweight children.

A highly important feature of the weight gain thus produced is that it is not ordinarily manifested by deposition of fat but as muscle tissue resulting from the protein anabolism induced by Nilevar.

Anorexia and "Weight Lag" Study—Brown, Libo and Nussbaum have reported* consistent and definite increases in rate of weight gain in eighty-six patients, ranging in age from 7 weeks to 15½ years. This beneficial action of Nilevar was observed in the patients with organic and traumatic disorders as well as those whose only complaints were poor appetite and/or persistent failure to gain weight.

In this study, the weight gained was not lost after discontinuance of Nilevar therapy although many patients did not continue the sharp gains effected by the drug.

The authors are of the opinion that Nilevar is a highly useful anabolic agent for influencing weight gain in underweight children.

When Nilevar is administered to children a dose of 0.25 mg. per pound of body weight is recommended and continuous dosage for more than three months is not recommended.

Nilevar is supplied as tablets of 10 mg., drops of 0.25 mg. per drop and ampuls of 25 mg. in 1 cc. of sesame oil. Further dosage information in Searle Reference Manual No. 4.

G. D. Searle & Co., Chicago 80, Illinois.
Research in the Service of Medicine.

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*Brown, S. S.; Libo, H. W., and Nussbaum, A. H.: Norethandralone in the Successful Management of Anorexia and "Weight Lag" in Children, Scientific Exhibit presented at the Annual Meeting of the American Academy of Pediatrics, Chicago, Oct. 20-23, 1958.

nary emphysema complicating other chronic inflammatory diseases of the lung. A focal type of emphysema has been described in the lungs of coal miners.

Certain changes in pulmonary function occur with aging. There is a decrease in vital capacity and an increase in residual volume in association with a change in the elastic properties of the lungs. These elderly persons have no respiratory symptoms but if such persons develop bronchitis, the physiologic findings could readily be confused with emphysema.

Many patients with emphysema will demonstrate an increase in the anteroposterior diameter of the chest associated with hyperresonance to percussion and a tendency to obliteration of the cardiac and hepatic dullness. Similar changes occur in many elderly persons without emphysema. Moreover, some patients with emphysema do not exhibit this phenomenon. It would appear that the barrel-chest phenomenon is related to aging changes in the skeleton. For some reason it tends to occur prematurely in patients with emphysema.

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Low Back Pain

DANA M. STREET, M.D.*

Pain in the lower part of the back is an extremely common condition resulting in many man hours of time lost in industry and to the farmer and forms the basis for many compensation cases. It also occupies much of the doctor's time, as well as causing much discomfort to the patients. Though a very common problem, it is also complex and in few conditions is there so much difference of opinion, confusion, and room for misrepresentation and malingering. The difficulty seems to stem from the fact that many etiologic causes enter into the picture; also the structures are not readily available to examination, and severe symptoms can be caused from minor degrees of displacement, instability or weakness.

The basic mechanical cause of weakness in this area seems to stem from the far distant past when man changed from a quadrupedal to bipedal means of locomotion and assumed an erect posture. In rotating the trunk through ninety degrees, half of this adjustment was made by hyperextension of the hips and half by hyperextension of the lumbar spine. The lumbo-sacral joint is more nearly horizontal and has less shirring stress when the abdominal muscles have good tone and correspondingly the lumbo-sacral angle increases as the abdomen is allowed to sag and the gluteus maximus muscles become relaxed. The symptom, therefore, frequently develops toward middle age, when the individual is less active, continues to enjoy a full diet, and adds pounds at the belt line.

Low back pain has been diagnosed by various titles depending somewhat on the presumed mechanism in vogue at the time. Lumbago has been a term much used in the past to indicate the low back pain in general and has been treated for many years by exercises and massage. When the pain radiates down the lower extremity, it has been termed sciatica, which conveys little indication of the etiology. A popular form of treatment of twenty-five years ago was sciatic stretching in which the hip was flexed under anesthesia with the knee extended until the extremity touched the chin. This gave gratifying results in some cases, probably through its manipulation of the lumbo-sacral joint. Sacro-iliac sprain or strain also became a popular diagnosis around the second or third decade of this century, and it covered a multitude of conditions. Manipulation of a supposed minute slippage was attended with some success, also apparently through manipulation of the lumbo-sacral joint. A more recent diagnosis which at times has achieved the popularity of almost a fad is the "slipped disc" or herniation of the nucleus pulposus.

The anatomic structure of the intervertebral disc was described by Vesalius in 1555. The pathologic diagnosis of a herniation of the soft nucleus through the annulus fibrosa was described at autopsy by Kocher in 1896. The clinical entity, however, linking the pathology with the symptom of sciatic pain was described by Goldthwait of Boston in 1911 and in the same year by Middleton and Teacher of Glasgow. The condition did not become generally recognized, however, until the report of Mixter and Barr in 1934. Since this time it has become such a common diagnosis that some have even considered it the chief, if not only, source of

*Little Rock, Arkansas

sciatic pain, and the operation for removal of the herniated disc has become common, though, unfortunately, has not given uniformly satisfactory results. Forgotten by many is the work of Williams and Yglesias in 1933 and Ghormley in the same year, demonstrating the impingement on nerve roots by narrowing of the bony foramen. This occurs as the facets over-ride when the pelvis rotates to increase the sway-back or lumbar lordosis. Also it was demonstrated by Wilson that as one progresses down the lumbar spine, the foramina progressively get smaller, while the nerve roots progressively larger, thereby making the 5th lumbar and 1st sacral roots the most vulnerable to compression.

ETIOLOGY

There is a great variety of conditions contributing to the causes of low back pain and sciatic radiation, running the gamut of etiologic agents. Congenital anomolies such as spinabifida, failure of lamino-pedicle union or spondylolysis, variations in the structure of the facets and level of segmentation can contribute both to constriction of the foramen or weakening of ligamentous attachment to bony structures, also allowing instability of the posterior articulation. While these may be the sole causative agents, they are more generally contributory in making the patient more susceptible to trauma.

Inflammatory conditions may involve the joints and their capsules such as rheumatoid arthritis, or the musculature and fibrous layers. Sciatic radiation is a frequent early sign of rheumatoid spondylitis or Marie-Strumpell arthritis which causes an early involvement of the sacro-iliac joints and many a disc exploration has been performed in the early stages of this disease. Truma is without a doubt the most frequent cause of difficulty in this location and may be of the nature of a sprain of ligaments supporting the apophyseal joints, ilio-lumbar ligaments, ligaments about the sacro-iliac joints, interspinous ligaments or the lumbo-sacral fascia. Sprains which involve the annulus fibrosa of the disc with eventual herniation of the nucleus pulposus are, of course, common. While these injuries are assumed to be due to excessive strain placed on the ligament, there comes a time, as the patient grows older, when degenerative processes may render the ligaments insufficient for the trauma of normal life. This leads to weakening of the attachment of the ligament to bone and results in spur formation or osteophytosis, also referred to as hypertrophic arthritis, which may become symptomatic or not, depending on its location. When these spurs form in the region of the foramen or posterior margin of the vertebral body, they can be the source of severe, constant, radiating pain often diagnosed as a herniated disc. Such spurs may also form on the anterior margin of the sacro-iliac joint, giving pressure on the lumbo-sacral trunk as it crosses to form the sciatic nerve and, therefore, giving rise to radiating sciatic pain. Neoplasms arising from bone adjacent to the spinal canal or within the spinal cavity may cause pain and neurological evidence of root pressure. Certain metabolic diseases such as osteoporosis and gout are also occasional offenders. The diagnosis may be difficult enough when there is a single etiologic agent; however, it becomes truly complex when several factors are jointly involved.

HISTORY

There are certain points of information which may be obtained in the history and prove helpful in evaluating the patient's condition. These relate to the nature of his pain, his capacity to carry out his regular activities, other unusual motor or sensory phenomena and possible contributing causes. Of obvious importance is the question of injury and its relation to onset of symptoms. One is interested in exactly how the force was transmitted, the position of the body, etc. The occurrence of infections is also of importance and its relation to the onset. Such conditions as flu, abscessed teeth, boils, cystitis, etc. may have a possible bearing. The character of the pain, whether insidious or sudden in onset, time relationship during the day, whether present on arising in the morning and improving as one "limbers up", or whether it gradually develops as the day progresses is of considerable significance. Pain at night is also important and may be the only indication of the presence of a neoplasm. The in-

crease of pain after prolonged sitting or changes with respect to the weather may indicate an inflammatory condition; a severe, constant, radiating pain recurring in cycles after strain such as lifting and persisting for a period of weeks may be caused by a herniated disc in contradistinction to transient, sharp fleeting pains on certain motions pointing rather to impingement of the nerve by unstable facets in a narrow foramen. Pain associated with coughing, sneezing and straining at the stool would indicate increase of spinal fluid pressure with transmission of pressure to nerve roots which may be under compression from herniation of the nucleus and in many instances associated edema. The presence of disturbance in bowel or bladder function associated with bilateral pain may signify a massive central herniation which should receive immediate treatment.

PHYSICAL EXAMINATION

An adequate examination is, of course, indicated in all patients to form a satisfactory evaluation of the condition and basis for treatment. The patient should be disrobed sufficiently to provide adequate observation of the posture and range of motion, but with due respect for modesty by the use of a gown, sheet, etc. A routine of examination may help to avoid overlooking certain findings which may not be immediately apparent from the history. It has proved helpful for the writer to examine the patient first in a standing position observing the posture with respect to the position of the head, degree of dorsal and lumbar curves, rotation of the pelvis, alignment of the legs and arches of the feet. Range of motion and evidence of tenderness of the cervical spine is then checked and whether cervical flexion causes pain in the low back region. Tenderness and range of rotation of the dorsal spine is then tested; it normally ranges from 30-45 degrees, with the hips held stationary. This also may produce pain in the low back region. The range of flexion and extension and also lateral flexion occurring mainly in the lumbar spine is then tested; hyperextension causing accentuation of an already narrow lumbo-sacral joint posteriorly may impinge on roots from further narrowing the foramina or pressing the nerve against a herniated nucleus. Lateral flexion causing pain toward the side of involvement again may indicate compression in the foramen, while pain away from the involvement may cause pain from stretching spastic muscles reacting to strains, inflammation or edema. If the evidence points toward a herniated nucleus pulposus, a useful corroborative sign with the patient in standing position is Naffziger's test, in which pressure is applied to the jugular veins causing an increase in the radiating pain through increase of spinal fluid pressure.

The patient is then asked to assume a prone position on the examining table and he is observed as he climbs on the table; if this is done with alacrity one questions an alleged severe state of pain. The spine is then palpated for spasm of the paravertebral muscles and tenderness in these areas; also over the lumbo-sacral and sacro-iliac joints. In the absence of severe tenderness a marked response to percussion over the spinus processes may indicate pressure around the roots as from a herniated disc. The patient is also checked for tenderness in the region of the sciatic notch and also along the course of the sciatic nerve, since, if there is true neuritic involvement, tenderness will be present over the nerve. While the patient is still prone is also a useful time to examine the Achilles tendon reflexes with the knees flexed and also to check the sensation over the posterior calf region.

The patient is then asked to turn on his back and again he is watched while doing so. In this position the hips are checked for range of motion, being flexed first with the knees flexed, then with the knee extended for the so-called straight leg-raising test. If positive, the Lasegue sign is a useful corroborative sign for pain on sciatic stretching in which the extremity is lowered to a point just below where the pain develops and the foot dorsi-flexed, the positive sign being if again pain is felt. The hip is then flexed and internally rotated to test for tightness for the pyriformis muscle which may be in spasm secondary to sciatic involvement or primarily contracted. In either case it may be a source of pain. The Patrick test is then employed, externally

rotating the hip and placing the foot on the opposite knee, while pressure is applied to the opposite anterior superior spine, thereby preventing the pelvis from rotating. With the leg in this position, pressure is applied to the knee to increase the extension and external rotation. Pain felt in the posterior hip region is considered due to involvement of the sacro-iliac joint either as a result of inflammation or trauma. If pain is not elicited in this position, but is when the hand is released from the opposite hip and the pelvis allowed to rotate, the test then implicates the lumbosacral joint as the source of pain. If the test reveals evidence of sacro-iliac involvement, a useful corroborative test is the Gaenslen sign in which the patient is moved to the edge of the table, the opposite hip and knee flexed by the patient, while the extremity of the involved side is dropped off the edge of the table into a position of hyperextension, thereby producing a thrust through the sacroiliac joint and causing pain when involvement is in this location. With the patient in supine position, the sacro-iliac joint can also be tested to localize traumatic involvement to the anterior or posterior ligaments by bearing down on the anterior superior spines causing a spreading of the pelvis or by compressing the iliac crests to throw strain on the posterior ligaments. With the patient in this position the sensation over the anterior aspects of the leg may be checked, after which the patient is asked to sit with the legs over the edge of the table while the patellar reflexes are checked.

DIAGNOSIS

Herniated Nucleus Pulposus: From the above history and physical findings we have seen that a history of injury such as lifting or a fall — pain which is relieved only after a period of time and aggravated by stretching the sciatic nerve or increasing spinal fluid pressure. In more severe cases there will be loss of deep tendon reflexes depending on the level of injury and decreased sensation which by its dermatome pattern may also indicate level of injury.

Lumbo-Sacral or Sacro-Iliac Sprain: Here we also have a history of injury which may be acute or cumulative. Thus, the sprain may be acute, recurring or chronic. Pain is generally localized to the low back region, where tenderness is also present, and also becomes more severe as the day progresses, but is relieved by rest. It is also aggravated by lifting, bending and otherwise placing strain on the involved area. Associated with injury may be varying degrees of bony proliferation or hypertrophic arthritis which may be again a sign of degenerative change.

Inflammatory: Pain gradual in onset possibly with associated infection; pain prominent on arising in the morning and improving after a period of "limbering up"; also pain after prolonged sitting and increased by changes of weather. Laboratory tests such as white count sedimentation rate may be very helpful; also other examination for foci of infection.

Neoplasm: Pain here may be more severe at night. There are also frequently signs of spasm and neurological changes with less localized tenderness.

Metabolic Diseases: May have to be diagnosed by laboratory studies; the x-ray examination is of frequent help, which is also the case when congenital anomolies are present.

X-rays should always be made including AP and lateral views and on occasion oblique studies to show variations in facets, joint changes, narrowing of the foramen, etc. They are of frequent value in diagnosis of inflammatory and neoplastic diseases and also in helping to rule out these conditions.

TREATMENT

In any acute condition, of primary importance is the treatment of rest which is often improved by the use of a board under the mattress. In severe cases it should be continuous. Traction seems to be of value in many instances although opinions differ and some feel that the main function is to keep the patient in bed. Traction may be more effective if the patient is placed on a moving platform using a split mattress to eliminate the friction of the legs and buttocks on the ordinary one-piece mattress. Heat is of frequent value in the early stages; exercises such as devised by Williams are a most effective conservative treatment

for herniation of the nucleus pulposus and other traumatic conditions. If the condition is not improved by developing the dynamic support in this way, it may be necessary to provide static support in the form of a belt or even a brace; however, then exercises should be continued to avoid the muscles becoming further weakened as a result of support. Support is also indicated in inflammatory conditions, and further relieved by heat. X-ray therapy may be of value in rheumatoid conditions. Surgical procedures may be necessary such as the removal of the herniated nucleus pulposus. If marked instability or traumatic arthritic changes are present, it may be advisable to add spine fusion to this procedure. Severe traumatic cases which are improved by support, but still do not allow the patient to return to a gainful occupation, should be treated by spine fusion. This procedure is also indicated for many painful inflammatory conditions which do not respond to conservative treatment. Surgery is obviously indicated for neoplastic conditions unless they are better handled by x-ray therapy. Surgery may be definitive to remove the entire lesion or paliative as a means of relieving nerve pressure.

CONCLUSION

The low back pain problem has many facets and must be approached from many angles. However, careful history and examination may point the way toward effective treatment and may return the patient to a normal course of living, saving much disability and, in many instances, considerable expense.

Human Factors in Space Flight*

LT. COLONEL GEORGE R. STEINKAMP, USAF (MC)**

It has been with almost breath-taking suddenness that we have progressed within the past decade from propeller driven aircraft to jet aircraft of medium speed, to supersonic aircraft and now stand on the verge of making extra-atmospheric flights. Each progressive step brought with it a new set of problems, not only for the design engineers, but for the specialists in Aviation Medicine. In the past, the designers overcame masterfully the problems associated with new factors in aerodynamics, increased speeds, higher altitudes and greater flight ranges. After the new aircraft were designed, it was only then that the human designers, the Flight Surgeons, were asked to find the flyer who could cope with the new problems and the new stresses, both mental and physical, that would be imposed by the new vehicle with higher performance characteristics. While the engineers and doctors apparently worked together, there was not sufficient interchange and interdependence and the result was not always the best.

Quite some years ago, while the engineers began working in the field of rocketry, there was a small group of visionary doctors and scientists in related disciplines who began outlining a new horizon which to most people was something out of the word of dreams — manned space flight. Like other visionaries in our past, most people are concerned with the mundanities of their own world and laugh at the dreams of the courageous few who dare to think beyond this little world. It was true of such pioneers as Columbus who invited the scorn and ridicule of his fellow travelers in his quest of discovery that man is not confined to a world with an edge from which he might drop off into nothingness.

A small group of visionaries — whom I shall call "practical" theorists — realized that rocketry offered another stride in aeronautical techniques and that with technological advancement the rocket would offer the means by which man's exploration of the universe could finally be accomplished. This group became banded together and formed the first organization of its kind devoted to the science of space and man's milieu in space. This daring approach to the extension of aviation medicine took place over ten years ago at the School of Aviation Medicine of the United States Air Force and marked the beginning of studies of the human factors involved in space flight.

The work accomplished through the years—during which many other scientists were either amused or scoffing—has now become the guidepost of the design engineers. *The specialists in Aviation Medicine has fast become the unique designers of the human factors and now almost literally direct the method of constructing the future vehicles.*

One of the most important basic concepts in manned space flight is that of the *space equivalence conditions to be found at various levels within our atmosphere.* This concept of functional borders between atmosphere and space was developed by Dr. Hubertus Strughold and the members of the Department of Space Medicine organized by him at the School. *These space equivalence conditions could limit manned space flight* unless both man and craft were protected against them. For example, at less than three miles from the earth, the oxygen content of the atmosphere becomes a limiting factor unless adequate amounts of this vital element are supplied. This also holds true for temperature, barometric pressure and other vital elements until at about 15 miles beyond the Earth there is — for man — the beginning of the total space equivalence area where all of the conditions found in man's natural habitat have been lost and must be duplicated for him. *Thus, a hermetically sealed cabin—equipped to perform all of the functions of the earth's atmosphere*

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**Contents of this manuscript reflect personal views of author and are not to be construed as a statement of official Air Force policy. Chief, Department of Astroecology, Space Medicine Division, School of Aviation Medicine, USAF, Randolph Air Force Base, Texas.

—is the answer for manned space flight. The Department of Space Medicine—*the first of its kind in the entire world*—began the study of all the human factors involved in this new environment, such as how to supply all of his needs, take care of waste and odor disposal and create an environment designed to support a human physiologically as well as psychologically.

With the advances in our technological skill, we are in an era in our history when we have the ability, the wherewithal, and the know-how to build such a vehicle. For countless years man has observed the universe around him and has felt the tremendous impact of the infinity of the cosmos; he now finds himself with a means for exploring this fantastic new world which is no longer only a dream or a longing.

There are many physiological parameters involved in space flight and it is impossible to explore them all in such a brief period. As we discuss a few of them, however, I would like for you to keep in mind one thing of prime importance — *the time element involved in any* given flight. So much depends upon the duration of the flight time, whether it is for a few hours or for an extended period. In a flight profile of any duration, however, the very nature of lift by means of rocket propulsion imposes an initial physiological stress of accelerative forces which are variously estimated to be within 8-10 g. If a multi-stage rocket is used, this stress is applied several times before orbital velocity is achieved. Studies on centrifuges and the rocket sled show that humans do have the capacity to withstand this force without incapacitating damage.

When the fuel thrust is exhausted and the vehicle is in its orbital path, zero-gravity becomes the natural state of the vehicle and its contents. Zero-gravity is used to describe the physical state, while the word "weightlessness" is usually applied to the psycho-physiological condition of the occupant. It has been theoretically argued that this condition will not cause any difficulty to the crewman. It must be remembered, however, that a true evaluation of the effects of prolonged exposure to weightlessness upon the human body and its systems cannot be made until manned space flights become a "fait accompli."

We have been studying this phenomenon during many parabolic flight maneuvers using jet aircraft. In the most recent past, flights have been made in an F-94C, Starfire, which is capable of about 40 seconds in zero-gravity in any one maneuver. We are adapting a supersonic F-100-F which increases the duration of the maneuvers to about 60 seconds. Even though many parabolas have been flown, there is not sufficient continuous time to fully explore the prolonged effects of weightlessness. Our findings do show a number of interesting things:

a. Some people do not tolerate this strange feeling too well. We cannot say as yet whether this intolerance is based on the sudden absence of sensory input from our gravireceptors so long accustomed to the force of gravity, or whether it is a simple anxiety engendered from the strangeness of the feeling.

b. We have frequently demonstrated that drinking fluids from open containers is impossible, and if attempted, can be extremely hazardous. In this state, the fluid pulls away from the sides of the container, forms itself into an amoeboid mass and hangs suspended inside or above the container. When even a small amount of gravity is applied, the mass will burst in one's face and cling there, filling the nose and sinuses and causing possible aspiration. Even a simple procedure which we use every day, such as drinking out of a glass, can become a serious problem in space flight.

c. Food also poses a similar problem in that unless it is well masticated, on being swallowed even small particles can float free in the nasopharynx, leading again to possible dangerous aspiration. Since our accustomed methods of food preparation cannot be used, there is the problem of using pre-processed foods, packaged in such a manner that they are readily useable.

From this brief discussion, it is rather obvious that there are many possibilities of problems with certain of the vital organs and related systems. The study of their functions under these conditions

must be made before we will know the true meaning of weightlessness.

To bring our space traveler safely back, we are faced with several situations that require a very close working relation between the human factors engineer and the vehicle design engineer, to name a few: a) guidance system control, b) aerodynamic heating, and c) deceleration.

If the vehicle does not reenter the earth's atmosphere at exactly the proper angle, it becomes a flaming instrument of death because of the intensity of the extreme heating. The improper angle would also cause a rapid rise in decelerative forces to such a level that the occupant would be either seriously injured or killed. While these are basically systems engineering problems, the solution rests partially with the aviation medical specialists studying human tolerances.

When we discuss the logistical support of the space traveler, it becomes most obvious that the problem areas can mount by a huge factor. We must consider the weight of every item that is included in the construction of the space capsule as well as every item that will contribute to the life support of the crewman. To place such a vehicle containing a human crewman in orbit, millions of pounds of fuel-thrust are required and we can readily see the astronomical proportions assumed in money, technology and other support agencies.

For short flights of perhaps only a few hours, a minimum of life support is needed to give the crewman his necessary oxygen to remove the carbon dioxide and to control the water vapor he produces. Provision must be made also to keep his environment within reasonable comfort zones for temperature and humidity. Food could be omitted as could water, for such short flights.

But, when we design the vehicle which is going to be the space traveler's home for 14, 30, 90 days, or as a permanent space station, it is readily seen why we have adopted for our space crewman a habitat embracing Dr. Strughold's word: "Terrella" — or "little world." Just as the ecology of our earth supplies us with our needed gas exchangers, our water and food, our waste regeneration and everything else to support us in comfort and health, so this closed system, narrowed to the small confines of a capsule, must really become our "new ecology away from our old ecology."

Oxygen, our most vital element, for a 90 day period weighs about 174 pounds without its containers and regulators. Water, for only basic consumption weighs about 198 pounds for the same period. Food, for our ordinarily accustomed diet weighs about 139 pounds, and this does not include the containers and packages. Nor do these figures take into account the weight of the accumulated wastes over prolonged periods which must be either recycled into utilizable form or destroyed so that they do not eventually drown or crowd out our space traveler.

It has been estimated that approximately 1,000 pounds of thrust is required for each pound of payload to achieve orbital velocity for a vehicle. It becomes immediately obvious that for prolonged flight, we must develop new systems and methods whereby we can provide the life support requirements for a man with a much more economical system drastically *reduced in weight.* Studies designed to find some of these answers are in progress in many places; too, they point out the close relation that exists between engineers, doctors and all the many related disciplines.

Mention has been made of the many engineering and physiological parameters being studied. There are many more intangible factors involved because of the very nature of the personality of the human being who will pioneer such an event. Man, by nature, is a most adaptable creature. He has a natural curiosity that leads him into striving for a solution to the unknowns about him. We have only to glance at history to find the thousands of examples of his curiosity and courage which have led to the great advances made in all of the sciences, arts and other fields of endeavor and have brought us to this point in our history and our technology and our knowledge.

Man, with his intangible nature, however, makes a most elusive subject. He presents one of the greatest challenges in the task of selecting people who will be able to withstand the known physical stresses of space flight and still remain

an effective and functional part of the man-vehicle system. The very nature of manned space flight has led many people into the realm of conjecture, imagination and fiction, none of which contribute to the logical assessment of human values designed to produce the effective crew required for such a potentially hazardous performance.

A more logical approach to the problem in our search for subject material appears to be the solicitation or selection from the population of our *Air Force, flying personnel* who have background training which equips them to be highly qualified pilots. This group of people have already undergone many screenings and their duty and performance after initial training has added another valid screening process. It could be supposed that this group would be so emotionally stable that there would be little chance of their developing disabling symptoms under the additional stresses. It has been found, though, that individuals who have resistance to one type of stress will succumb to a stress of a different variety.

The process of selection is an extremely complex one when we face the fact that many of the things that must be considered can only be theorized. A few of these are the prolonged weightlessness, the aloneness of being completely separated from any trace of a normal environment and the confinement encountered in vehicles of small size. However, certain standards are in existence in the Air Force selection program for conventional flying, and we use these as a basic tool. We set—as a minimum of time—approximately one month to gain sufficient data on each volunteer to arrive at an acceptable conclusion. This became a project jointly shared with all of the resources of the School of Aviation Medicine.

When the volunteer arrives, he is met by a project doctor who acts as a guide for the first week. At initial conferences the man is given a complete program explanation for the procedures he would undergo. An intensive background history is begun together with as complete a physical examination as we believe possible. For this examination, the basic study is completed by our Flight Surgeons in the Department of Flight Medicine. The School's entire consultation staff is used and the subjects are then examined by specialists in Ophthalmology, Otorhinolaryngology and Internal Medicine. Since accelerations of varying degree play an important part in Space Flight, special emphasis must be placed on the cardiovascular system. Vectorcardiograms, as well as electrocardiograms are incorporated as part of the special studies on the tilt table and other stress tests. The routine is varied from day to day so that the subject will not tire of individual procedures. During the period, he is also subjected to intensive background investigation from a psychiatrist in an effort to establish the definite personality types which later become factors in being able to predict behavior patterns. This is also associated with performance tests on varied psychological batteries and observations while they are committed to psychomotor performance instruments.

It is rather obvious that people who would be able to withstand the stresses involved in duty of this sort must be not only in superior mental and physical health, but their status of physical conditioning — also of importance — must measure up in like proportion. Consequently, we have built into our examinations a study of their performance ability on treadmills and of their respiratory reserves.

Special investigation has been carried on at the School in a number of fields specifically concerned with measurements of stress and its effect on humans. Some of this work is done in the School's Department of Experimental Dentistry and this data is now being applied to practical application in our studies. Other laboratories in the School also make intensive and exhaustive studies on blood and urine. Not only are these tests done during the major examination, but they are also made a part of our follow-up work.

One of the major factors still to be studied is the adaptability of the person to the environment most likely to be found in actual space flight. Following these pre-flight examinations, the pilot is given a two-day period of indoctrination and training in our Space Cabin Simulator. In brief, this is a hermetical-

ly sealed chamber which provides us with the opportunity of investigating how the viomedical integrity of the future astronaut is likely to be affected by a variety of conditions common to space flight. These range from the environmental conditions of temperature extremes, humidity, restriction of mobility and isolation, to the atmospheric conditions of cabin pressure, different gas constituents and their partial pressures, and finally to the multiplications of psychophysiological stress.

With the completion of indoctrination and training, the pilot is then committed to a simulated flight in space which follows a given and systematically manipulated flight profile. From the totality of behavioral reactions evoked by the conditions of flight, certain critical indices of adjustment and deficiencies are continuously evaluated. These together with the findings obtained during the subsequent post-flight examinations, are then related to the pre-flight evaluations.

The final results of such a program of research can be expected to consist of information concerning the limits of man's adjustive capacities.

In conjunction with our many studies of physiological stresses, we have been utilizing our sealed space cabin simulator as an added adjunct in psychological studies. while it is argued that a cabin simulator is a static laboratory situation, it can be countered by the most valid argument that such studies cannot otherwise be conducted except in actual space flights. We have conducted a series of prolonged tests on individuals, exposing them to extremely confining cramped cabin, isolated from their usual social contacts, and confined to a strange work and rest schedule designed to break their normally accepted diurnal rhythms, patterns and habits. The adjustments made by individual subjects has been rather remarkable and attests further to man's ability to adapt to a situation, and by being well-motivated and trained, demonstrate his ability to remain an effective component in the man-machine complex.

As we view the many factors involved in the accomplishment of manned space flight, they at times appear almost overwhelming in their number and complexity. As with many of the great discoveries t h r o u g h o u t man's history upon earth, long hours of thought, planning and careful investigation have precluded the announcement of the conquest. Behind each discovery, too, lie the long hours of fruitless frustration and heartache that are the natural heritage of the dreamer who seeks for perfection and for the realization of the answer to his dreams. The dream of man searching into his universe is fast approaching reality, and we live in an age of wonderment. We, as practitioners of the healing art, must be vitally concerned with this advancement. We, too, must extend our horizons in preparation for the vital part we now play and will continue to play in the future of each of our fellow human beings.

The New Era of Aging*

LOUIS M. ORR, M.D.**

I consider it a special honor that you have invited me to attend this Arkansas Rural Health Conference, particularly in view of your theme, "The New Era of Aging."

As you know, the American Medical Association has been gravely concerned with the entire subject of aging, and we have been doing our utmost to understand the many problems it encompasses.

But no matter what the A.M.A. does, or wants to do, we cannot succeed without the energetic support and cooperation of the state and local medical societies, as well as civic and professional groups. For this reason, I believe your conference has a far-reaching importance to the over-all approach to the problems of the aged.

Your interest and activity in this subject will provide the backbone for any positive program that will ultimately benefit our senior citizens. The basic premise of American medicine's approach to the problems of old age is that they can and must be solved *in the family* and *in the community*.

Governments can legislate and resolve, but their words can never duplicate personal concern and interest of one human for another. We could talk for years about what *should* be done, but it is only when interested individuals start *doing* something, that progress begins.

Unfortunately, man's nature is such that he does not care to worry too much about the future.

For example, most people were not overly concerned with the mushrooming growth of communism during the last 30 years, until it suddenly loomed before them as a titanic menace to everything they had taken for granted.

For years, the specter of Russian might was ignored as unimportant and uninteresting. Then one day we awoke to see that the Soviet bear had gobbled up a large chunk of Europe and Asia. In just a few years, the doctrines of communism had successfully penetrated throughout densely-populated China and the Far East. Nations we had forgotten existed were swept under the Red Star, and all at once, Stalin became something more than a comic-opera character with bushy hair and a walrus mustache.

In other challenges, too, we have suffered for not looking ahead. We beamed with pride as modern man flexed his muscles by setting off atomic blasts, but several years passed before our people started worrying about the dangers of annihilation.

And now we are face to face with another crisis, perhaps not as awesome as the others I have mentioned, but no less revolutionary and urgent. In America right now, there are approximately 16 million people categorized as "old." This has never happened before . . . never in all history.

Of course, there really is nothing new about old age. Every generation has had its octogenarians and senior citizens. Even back into biblical times, such men as Noah and Methuselah astonished their contemporaries by living far longer than anyone else.

But the difference between the past, when a few lived longer than their life expectancy, and the present, is that today *more* people—millions of them—are living longer than ever before.

In the past, a man who lived into his 60s, 70s or 80s was regarded as something of a freak. He was definitely the exception. Any problems or difficulties caused by his advanced age could be treated accordingly as rarities or departures from the general rule.

But today, when man's life expectancy is around 70 years, we must regard old age, not as unusual, but as a part of human life, equally important to each individual as youth and middle age.

In a sense, the medical profession has played a large part in bringing about these extra years. And now, having added years to life, we are desperately concerned to add life to these bonus years.

*Delivered before Arkansas Rural Health Conference, Hotel Marion, Little Rock, Ark., Thursday, July 30, 1959.

**President American Medical Association.

As all of you realize, the problems of old age extend far beyond health and medical needs. As physicians, we can do our best to help a man enjoy reasonably good health in his later years, but he will still be faced with a host of difficulties. These include financial, social, emotional and psychological.

But before going any further, let's look briefly at the term "old age." When and why and how does an individual suddenly become old?

Through some strange workings of the modern mind, the age of 65 has been settled on as the dividing line between middle age and old age. But everyone with even a basic understanding of the human body can see the absurdity of such an arbitrary designation.

To a physician, old age means something more than retirement or lazing in the sun. Both the mind and body play important roles in the process of aging. The human body becomes old once it reaches a certain stage of decline. But a man's mind need never lose its youthfulness. You and I know many persons who have been old in spirit long before their 50th birthday. Likewise, we know men of 70 or 80 whose mental maturity and wisdom are seasoned with youth and optimism. Such examples illustrate the impossibility of drawing an arbitrary, inflexible line between youth and old age.

In my experience both as a doctor and as a participant in community affairs, I have been somewhat surprised at the way many people try to avoid thinking about their later years. For some reason, these people would just like to forget that some day they will be old.

Personally, such an attitude strikes me as rather childish. After all, we start aging from the moment of conception. Every second that passes is gone forever, and to think that they can be called back is foolish. That evasive "fountain of youth" has yet to be discovered, and until it is, I prefer to look ahead with optimism than backwards with regret.

Growing old is neither more or less a part of life's wonderful cycle. Human existence can be delightful and rewarding, or it can be miserable and wretched, depending on the attitude of each individual. Old age is what a person makes of it.

Most of us, and even more so, our children, will have the opportunity denied to our ancestors: to enjoy almost twice their number of years on earth. And prospects for even longer lives are bright for future generations.

But before you and your children will be able to enjoy old age to the fullest, there are certain outside influences that must be removed or modified.

Let's face it: old age today is not *all* it should be. As I have mentioned, there are many external problems besetting the aged, limiting their opportunity to live fruitful and rewarding lives.

I am sure most of you remember the talk about the "golden years" when the ideas of retirement were gaining wide interest several years ago. After a lifetime of work a man could look forward to spending his final years in peace and tranquility, free from the necessity of earning a salary.

This certainly was a pleasant dream, and still is. However, for too many of our citizens it has remained just that—an unfulfilled dream. Large numbers of oldsters find their lives turned into a time of trial and privation. Why is this?

Because our society's ignorance and prejudice have shoved the oldster into a state of near exile, a social leper colony. Old people are kickd out of the mainstream of active living. Many working men find that when they reach the age of 65 of thereabouts, they are presented with gold wristwatches, certificates of service, handshakes from their employers and dismissals from their jobs.

Instead of being able to retire comfortably, these old people, many of whom have the vigorous desire to remain active, find themselves forced to live with reduced incomes and lower standards. And worst of all, they are shooed out of society.

If the retired oldster should want to continue working, to remain productive, this is virtually impossible. Such a state of affairs is an ideal breeding grounds for a swarm of other problems. It is not necessary to point out that a drastic, unwanted change in a man's way of life

can touch off grave emotional and psychological disturbances.

Of course, such a description does not fit every American over 65. Many find retirement just what they had hoped it would be. But our concern is for those who want something more out of life than a small pension or a job as a baby-sitter.

I believe this new era of aging will be a welcome addition to life only after we correct the erroneous notion that 65 marks the beginning of the end. I think we ought to reconsider the entire subject of compulsory retirement, and stop shouldering aside those older people who have so much to give yet who ask nothing but the chance to continue giving it.

Each of us has his own ideas on what constitute human needs. However, I think you will agree with me that two of these basic needs are: (1) a pleasant place to live and (2) something to do. These needs are those of all age groups, young and old alike. Take away one or both of them, and you remove a cornerstone from a sound, sturdy human structure.

And that is just what is happening to our senior citizens. Compulsory retirement and social ostracism are forcing them into inactivity.

Physicians realize they have an obligation to discharge to our senior citizens, one that cannot be resolved in the laboratory or operating room. Although our foremost concern is for the health and medical problems of the elderly, we cannot turn our backs on their many other difficulties. We must examine them all if we are to succeed in offering any tangible, lasting help.

More than anything, we want our society to give its senior citizens something more than a big birthday cake or a patronizing pat on the back. We want to help them reap the benefits of their final years, years that should be pleasant and free from worry.

But such a goal is far too great for any one group to think of reaching it alone. Care for any part of our population, particularly the aged, requires a combined attack on the problem by all citizens — doctors, nurses, hospitals, social workers, insurance companies, businessmen, community leaders and civic groups.

Our concern also should be more than just a charitable willingness to help people. No, we must bring about a change in America's attitude toward old people. Remember, whatever good we accomplish now will be around to help us when *we* reach those twilight years.

Of course, we cannot hope to help the aged unless they want to help themselves. To force a way of life on them would be as wrong as to deny them the rights of individual freedom. But I believe the vast majority of oldsters want to improve their conditions, but are blocked by circumstances or by society itself.

In "The Dynamics of Aging," a book by Ethel Sabin Smith, I came across an interesting passage on this subject. She says:

"To accept the social verdict that one is no longer an asset but a liability to society goes far to make one a liability."

This is why I believe our principle task is to help the aged help themselves.

Not just as citizens, but as members of the human race we are involved in this problem. I am sure most Americans will agree, once the problem is laid before them, that helping our old people is a duty. I would like to believe that the majority of our population is anxious and willing to do something positive.

But no society, no organization is without its men and women who, when faced with responsibility or a summons to action, sit back and say, "Let someone else do it."

I say that such an attitude is dangerous!

Why? Here's my answer:

—Take 16 million people over 65 and isolate them from jobs, communities and their ways of life.

—Tell them that the rest of the nation does not care now long they live, or in what manner.

—Tell them that a more youthful society looks on them as nuisances and would be happier if they were out of the way.

—To this number, add a few million more who are approaching the age of compulsory retirement, and are not happy with their prospects.

—Finally, reinforce these ranks with those who believe that personal responsibility for the older members of one's family can easily and inexpensively be replaced by governmental responsibility.

Now, show such a gathering to an aspiring politician and whisper softly in his ear that it certainly would be a powerful voting faction, one he would do well to exploit. You won't have to repeat this twice.

Today we are faced with a situation that must be taken care of immediately. It will not stand still while we argue and bicker about it. This ever-growing group of aged has very definite needs which must be met, and which *will* be met, one way or another.

Personally, I believe these needs can be handled on a voluntary basis through the combined efforts of private groups, individual citizens and the old people themselves.

But if a voluntary solution is not arrived at, as sure as you are sitting here, you can expect the enterprising politicians to start unloading their bags of tricks with programs of federal government supervision and control.

As most of you know, Congress has been considering a bill which would establish a federal program to provide health care for the aged. This legislation, sponsored by Representative Forand of Rhode Island, would provide hospital, surgical and nursing home care for most social security beneficiaries.

To those who look only at surface values, Forand-type legislation might seem harmless enough, and perhaps a good thing for our senior citizens. But all you have to do is peek beneath the cover to see some rather striking disadvantages.

For example, to put such a law into effect would be crushingly expensive. Authorities estimated the cost could run as high as two billion dollars. And that figure is just for the first two years!

Because such legislation would be financed by social security revenue, everyone who pays these taxes would foot the bill. In effect, this means that that portion of our population under 65 would be forced to provide an indeterminate amount of health care for those over 65. And as the ranks of old people increase—as they will continue to do—these taxes will have to be raised accordingly to meet the costs.

Another serious defect of Forand-type bills is their effect on our hospitals. We all know that when something is free, many people who might not need it will rush to take advantage of it. Our hospitals already are heavily crowded, especially institutions in rural areas. However, they are performing a good job, and usually are able to handle all the patients.

One of the health problems of the aged is that many do not require a lengthy stay in hospitals, but can be well treated in nursing homes, or even by their own families.

I don't think I need to warn you of the dangers attending the passage of such a bill to our entire free enterprise system. The proponents of compulsory federal health insurance realize that if the Forand Bill were to become law, they would have the proverbial "foot in the door." There is every reason to believe that once Congress provides medical and health care for one age group, it will go on to include all others.

But worst of all, such legislation would eliminate the flexibility so essential to good medical care. As you realize no two persons are the same, and each individual requires a different degree of health and medical care. It would be foolish indeed to try to treat many millions under a rigid, unbending program, such as any federally-run plan would be. Also, our old people would be legislated into a state of semi-permanent dependence on the federal government for their needs, and consequently subject to the whims of Congress and political pressures.

Some of the far reaching implications of the Forand Bill were summarized by the Wall Street Journal in an editorial on Tuesday of this week. The editorial calls the Bill:

"The beginning of a major political effort to capture the votes of those of us who are or soon will be 'senior citizens.'"

"Make no mistake about it," the editorial continues, "there are men in Congress who are convinced that this is the big new area for vote-getting political largess in the future—to make the aged a class apart on which subsidies can be showered.

"And this cynical notion of creating a new caste of wards of government is an insult both to today's old people and to those now trying to provide for a dignified old age.

"It is even more cynical when you consider that one real way for Congress to help is to see to it that the people's dollars are not eaten away by inflation by the time they get old."

The physicians of America want to provide the best possible health care for *all* their patients, regardless of age or social groups. We believe every patient has the right to personal and individual attention. From the earliest days of medicine, the relationship between patient and physician has helped create a warm bond of mutual understanding and cooperation.

This bond would doubtlessly suffer a severe rupture should the federal government step in and dictate how a person should be treated.

In other words, one of our great fears is that the quality of medical care could suffer under any form of government control.

There are so many different aspects of the aging situation, that a measure such as the Forand bill, providing only for medical and health care, could never hope to meet.

Many experts believe that federal intervention in the private practice of medicine would only complicate the problems of the aged further.

Right now, a problem exists. However, the medical profession is advancing boldly to meet it, and we are confident of success. Already, several state and local medical societies, working in cooperation with commercial and health insurance firms, have developed low premium insurance for old people.

But under government medicine, all this progress would be wiped out. The aged would be no better off than they are now, and it is reasonable to assume they might well be worse off.

However, I think that active and energetic work by American medicine, along with all other groups and segments of our population can bring about a new life for our aged. If we can accomplish this, and *do* accomplish it, there will be no need for governmental action. We are in the midst of this New Era of Aging. You and I have it in our power to turn it into a New Era of Life for the aged. I know we will.

What's NEW

Polyethylene in Middle Ear Surgery

H. A. Ted Bailey Jr., M.D.*

Polyethylene was first introduced in Great Britain in 1936. It was created by a process of polymerization of ethylene under great heat and pressure. It is tasteless, pearly gray, and chemically inert. It may be cut by a knife but does not crack or break. It does soften at 110° C. so it is moldable when heated but cannot be autoclaved.

It was first used in the medical field by Meyers in 1945 for intravenous tubing. Following this article, increasing numbers of uses by surgeons were reported. For the last three or four years it has been used by otologists in the middle ear space both here and abroad. There has been no reported case of foreign tissue reaction to the use of Polyethylene (P.E.) to my knowledge. The author personally used P.E. in the Middle Ear (M.E.) for over two years without evidence of any intolerance.

Both P.E. tubing and P.E. sheeting in middle ear surgery, have been used, however the tubing has been much more extensively used. The most common use for the tubing has been as a Prosthesis for the Stapes or Stirrup in a new operation for Otosclerosis. Otosclerosis is the most common cause for progressive conductive hearing loss in adults and is a hereditary disease of the bony labyrinth. This new operation is a new type of fenestration of the labyrinth. It is called Fenestration of the Fenestra Ovalis. The word fenestration simply means "making of a window" and that is exactly what is done in this latest procedure. However, this operation is performed using the same approach through the ear canal and drum as in the Stapes Mobilization procedure. The microscope is essential of course. The Stapes which is fixed by the Otosclerotic disease in the Fenestra Ovalis (oval window) is removed by one of several means and the hole created by removal of its footplate is the "fenestra" or window of the labyrinth (inner ear).

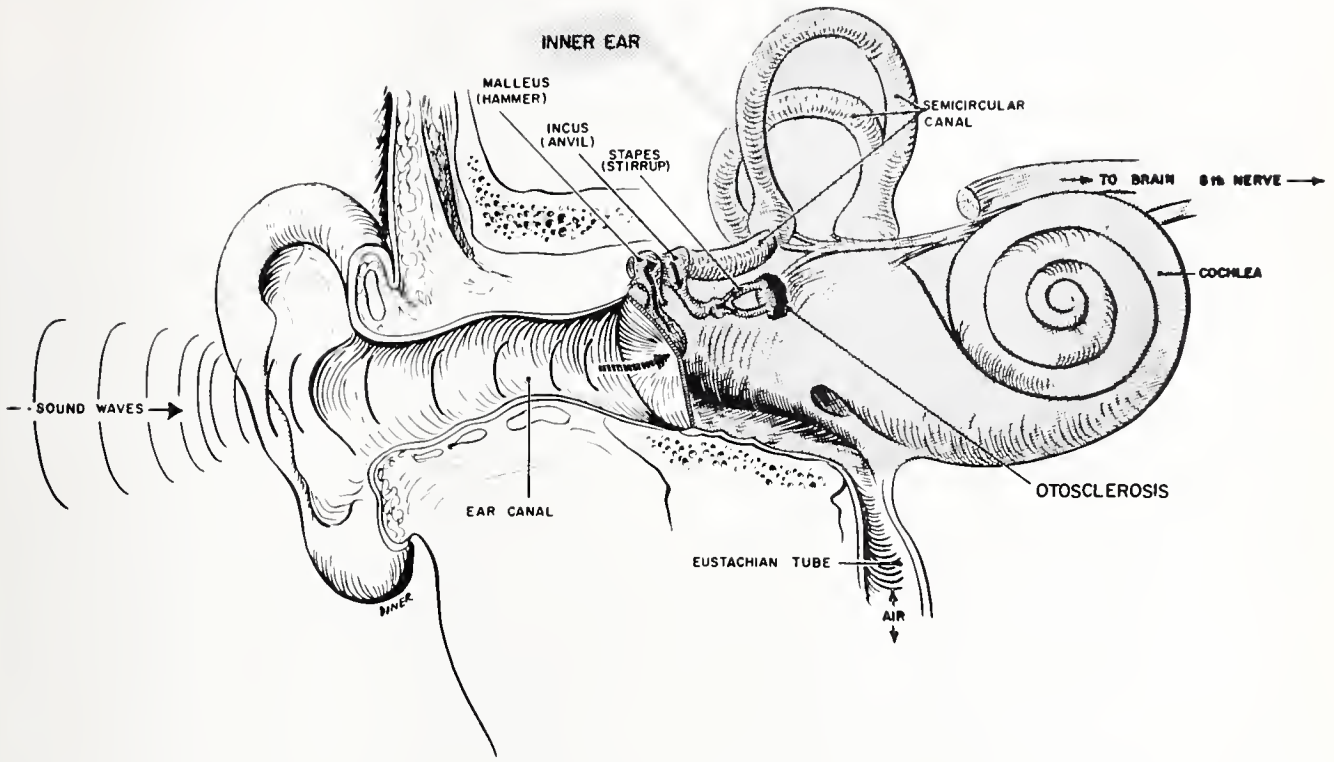
This fenestra is then covered with a very thin vein (split open with the intima placed up) taken from the back of the hand. A small strut of No. 90 P.E. tubing about the size of the removed Stapes is then placed in the center of the fenestra on the vein and slipped up under the incus or second ear bone and fits around it like a cuff. (See drawing). This restores the pathway for sound conduction into the inner ear with the vein acting as a secondary drum for transmission of sound waves coming down the Plastic Prosthesis from the ossicular chain. Thus nature's own pathway for sound conduction is utilized rather than by-passed as in the old fenestration operation.

This results in better hearing than with either the older fenestration or the more recent Stapes Mobilization. Too, there is less vertigo with this procedure than with the older one and not much more in most cases than we see with the Mobilization. Only a few days hospitalization is required and old age is itself not a factor.

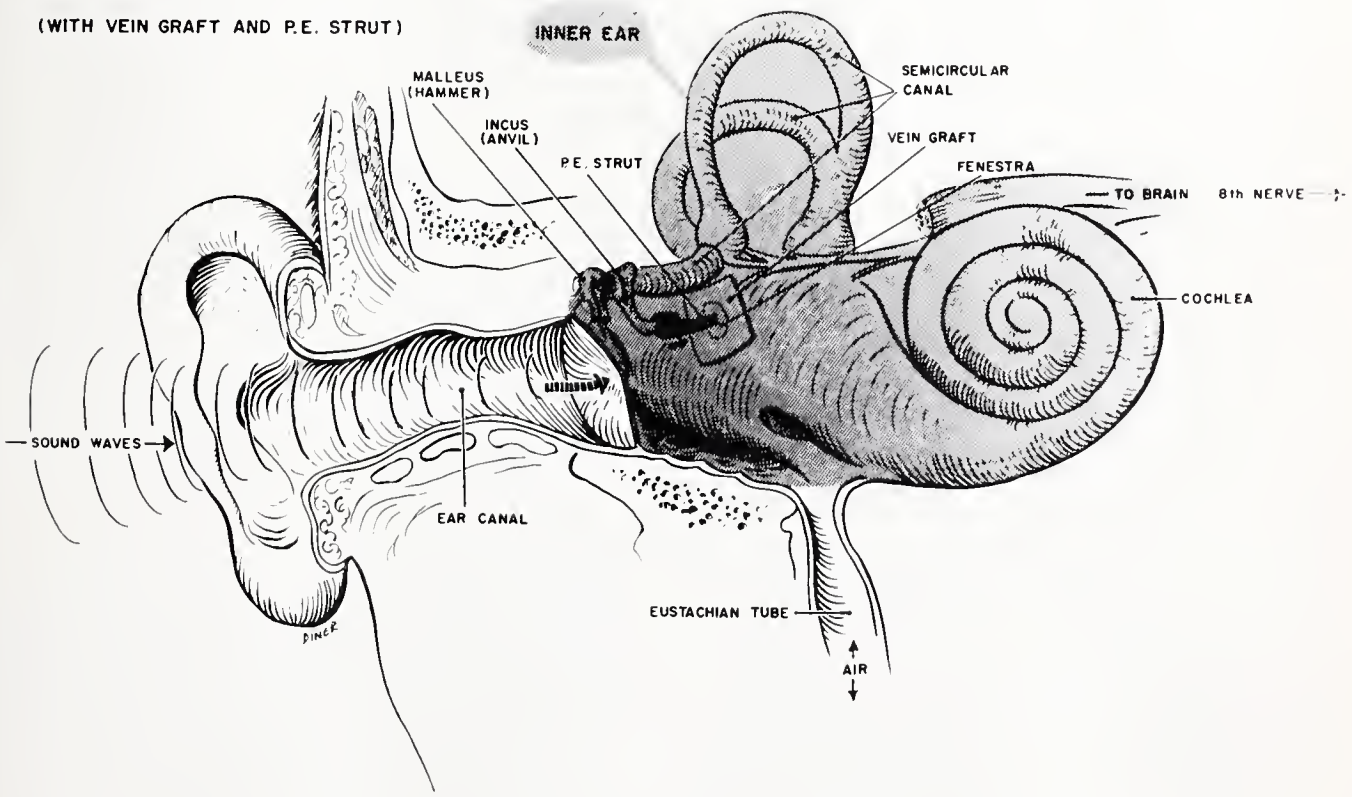
In the first 75 cases of Fenestration of the Fenestra Ovalis using the Vein Graft and P. E. strut, 92% or 69 cases had a satisfactory one month postoperative hearing result. Only one case of the remaining six showed less than a 25% GAIN in hearing and thus none of the cases failed to show at least some improvement. Of these cases 85% continued to show further gain in hearing at the four month postoperative check while only two cases or 2.6% showed a SIGNIFICANT drop in hearing at the four month check over the one month check. Several cases have been

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OTOSCLEROSIS



FENESTRATION OF FENESTRA OVALIS
(WITH VEIN GRAFT AND P.E. STRUT)



followed over one year and maintained their hearing improvement. Thus it would appear on the basis of my results so far that this procedure offers the patient an excellent chance for restoration of hearing in cases of Otosclerosis and that this result will most likely be permanent.

Other uses of the P.E. tubing in the M.E. have been to ventilate the M.E. space by leaving the tubing in the M.E. to carry air from the eustachian tube around to the round window. Also more commonly it has been used to ventilate the M.E. space by placing the tubing in the canal and through the ear drum. This has been of tremendous help in cases of Eustachian tube blockage with serum or mucous in the ear. The patient gets immediate symptomatic relief and in many cases the ventilation of the M.E. space by the tube is important to correct the Eustachian tube blockage. The plastic tube acts as an artificial eustachian tube until such time as the eustachian tube can become functional and take over the ventilation of the M.E. space which is its primary function. These tubes must sometime be left in place for several months in order for the eustachian tube to return to normal. No damage to the ear drum results from this use and in several hundred cases there has been no persistent perforation.

Polyethylene sheeting has also been used in some of the various tympanoplastic operations in the M. E. designed to restore the sound conduction system and at the same time rid the M.E. space of a chronic infection. The sheeting has been valuable in cases where the lining mucous membrane of the M. E. had to be sacrificed in order to clean up all infection. In these cases the skin graft or new drum will adhere to the medial wall of the middle ear since it has lost its own lining membrane UNLESS P.E. sheeting or some material is used to cover it. The sheeting has worked very nicely in these cases to prevent adhering between the medial wall and the new drum and again is well tolerated by the M.E. space.

In conclusion, good restoration of hearing can be accomplished through the surgical use of Polyethylene Tubing and Sheeting. There are no important contraindications to or complications from the use of plastics in ear surgery.

A TEACHING SEMINAR
FROM THE
UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

Clinical Disorders of Thirst

E. J. Towbin, M.D., Ph.D.*

Our unicellular ancestors floating in the warm pre-Cambian sea some 600,000,000 years ago had no problems in the regulation of water intake for they were in equilibrium with their environment. The evolution of complex, multicellular animals who lived on the land created problems in obtaining and conserving water. The problems were met in a variety of ways. For example, in amphibia, water is absorbed through the skin. In insects water loss is kept very low by the hard, waxy exoskeleton. In contrast to these forms of life which do not drink, almost all mammals require more water than is available in their food. The few exceptions being animals such as the kangaroo rat which has made an amazing adaptation to its desert environment. This need for extra water results in behavior patterns which we call thirst and which we can define as "the urge to drink water."

In man thirst is evoked by a variety of social and psychological factors as well as those related to the maintenance of constant chemical concentrations and osmotic pressures in his intracellular and extracellular fluids and those concerned with maintaining adequate fluid volume; the maintenance of a plasma volume adequate to sustain normal circulation being of prime importance.

EXPERIMENTAL

Before proceeding to human disease it might be well to briefly review some of the animal experiments which illustrate the arousal of thirst by reducing fluid volume and/or raising chemical concentrations and osmolarity. The simplest condition and the one which most closely approximates normal physiological events is dehydration which can be brought about rather quickly in the dog by placing the animal in a dry, hot environment and causing him to pant. Such an animal may lose approximately 1% of his body weight in water each hour and it can be readily demonstrated that such a dog's intra and extracellular fluid volumes are reduced while the concentration of solute and the osmotic pressure of the plasma are increased. Dogs so dehydrated will very promptly and accurately replace their water deficit when a water supply is placed in their cage. In contrast to dehydration the intravenous infusion of a hypertonic sodium chloride solution (20% saline) produces a marked increase in extracellular fluid volume but the increase in plasma osmotic pressure and the marked decrease in intracellular fluid volume seem sufficient to stimulate drinking behavior. If one infuses an equivalent volume of 40% urea (8) the animal will drink approximately the same volume as it did following the hypertonic saline although the urea which can readily diffuse through cell membranes causes no changes in intra or extracellular fluid volumes and only an increase in osmolarity. However, not every compound which produces increase in osmolarity stimulates thirst. For example, 50 grams of ethyl alcohol increases osmolarity from the normal range of about 280 milliosmols to 300 milliosmols per liter without producing thirst. A number of interesting studies in the dog (6) have demonstrated that marked sodium chloride depletion leading to sharp decrease in extracellular fluid volume and osmotic pressure with drops in plasma volumes of 10 to 20% produce a doubling of the volume of water ingested by the dog daily.

In addition to these studies elucidating the mechanisms of volume and concen-

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THERAPY
FOR THE
RHEUMATIC
"IN-BETWEEN"

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tration control, the basic physiologist has contributed to our understanding of the posterior pituitary and hypothalamus in water metabolism. Lesions in this hypothalamic—hypophyseal system which compromise the production of antidiuretic hormone may lead to polydipsia. Lesions placed in other hypothalamic nuclei result in the absence of thirst behavior (1)

CLINICAL

Solute Diuresis: The symptoms of polydipsia and ployurea are commonly encountered in clinical practice. Most often the abnormally large water intake results from the large urinary water loss in the excretion of a large urinary solute load. Justifiably the physician's first thoughts in dealing with the complaint of polydipsia and polyurea is to determine whether his patient has diabetes mellitus for this is the most common cause of polydipsia and the symptom disappears with the restoration of more normal carbohydrate metabolism. Other situations in which a high urinary solute load produces unusually large urinary water losses will likewise result in polydipsia. Hyperparathyroidism, for example, with a large urinary calcium loss would fit in this category though in addition there is some evidence to indicate that the high level of calcium ion interferes with the action of antidiuretic hormone on the kidney tubule and thereby causes even greater urinary water loss.

Renal Disease: Next in order of frequency renal diseases may be the basis for increased water turnover. Chronic glomerulonephritis and chronic pyelonephritis are the usual culprits. However, obstructive uropathy, hypokalemia, toxic nephropathies and congenital tubular disorders must not be overlooked. In discussing patients with chronic renal disease White (13) found a decreased responsiveness to the antidiuretic hormone. They were not able to define precisely the physiologic mechanism responsible for the diminished tubular responsiveness to the antidiuretic hormone but suggested that in addition to intrinsic damage to the distal tubular cells as a result of the renal disease the load of water presented to the distal tubule may be excessive due to impaired reabsorption of water in proximal tubular segments. In summary, urinary water loss is increased because the diseased kidney can not make a concentrated urine. Under these circumstances polydipsia is to be encouraged for reduction in water intake may precipitate azotemia. Diagnoses in this area is made by securing a history of additional factors such as hematuria or dysurea, the careful examination of the urine for cells, casts and protein, and such further laboratory aids as PSP excretion tests, renal clearances to determine renal hemodynamics and intravenous or retrograde pyelograms.

Reduced extracellular fluid: So far we have mentioned situations in which abnormally large urinary water losses lead to thirst. It is well, however, to recall that reductions in extracellular fluid volume may occur much more directly as, for example, with significant hemorrhage or removal of large volumes of ascitic or plural fluid, or may occur more gradually as in the sodium and water depletion caused by severe vomiting, diarrhea, or g. i. suction. As with the dog, (6) such depletion will cause abnormally intense thirst which should serve to alert the physician so that he may correct the basic disorder.

Diabetes Insipidus: Having come this far in the differential diagnosis of a case of polydipsia without finding an answer the remaining major alternatives are true diabetes insipidus or psychogenic polydipsia. The first differentiation between the two types of diabetes was made by Thomas Willis, 1682, who differentiated between the sweet or the insipid taste of urine in polyuria. It remained for Johann Peter Frank in 1794 to define diabetes insipidus as a "long continued, abnormally increased secretion of non-saccharin urine which is not caused by renal disease." Frank's definition is brought completely up to date by adding the qualification that the patient with diabetes insipidus is unable to produce antidiuretic hormone when appropriately stimulated. The renal physiologist have very beautifully demonstrated that the eight-amino-acid peptide, antidiuretic hormone, increases the permeability of the renal tubule and makes it possible for the kidney to elaborate urine which is hypertonic to the plasma. In the absence of this

hormone and with normal renal-plasma flow as much as 24 liters per day could be excreted as dilute urine, and in actual fact cases have been reported with daily urinary volumes of this magnitude. Such large urinary water losses make it appear that the polydipsia is solely a secondary phenomenon to the primary polyuria in this disease. A few carefully designed studies present in controvertible evidence that diabetes insipidus also involves a primary polydipsia. This is true not only in experimental dogs (3), (10), but also in patients for it has been shown that hydropenic diabetes insipidus patients may experience relief from thirst following pitressin injections even though they have not taken any water (12).

The intravenous infusion of hypertonic sodium chloride (2.5%) will cause the secretion of antidiuretic hormone in a normal individual and will result in the production of a concentrated urine. However, in the patient with diabetes insipidus whose hypothalamic — hypophyseal system is damaged, no antidiuretic hormone will be released, and there will be no inhibition of water diuresis (9). If this test does not inhibit an induced water diuresis, it is necessary to demonstrate that the kidney is responsive to antidiuretic hormone before it can be assumed that no hormone has been released. This point is easily checked by the parenteral administration of a few units of antidiuretic hormone which is commercially advailable from animal sources. In true diabetes insipidus there is no primary renal leasion and the antidiuretic hormone will cause an inhibition of water diuresis.

Blotner (4) tabulates the etiological classification in 124 cases of diabetes insipidus as follows: By far the largest group, 56 cases, were classified as idiopathic. In reviewing the neuropathology of a few of these cases Blotner finds only primary degeneration with marked loss of nerve cells in the superoptic nuclei of the hypothalamus. A considerable degree of localized astrocytic proliferation was noted in the same region. The next most common cause was primary brain tumors, 36 cases; syphilis, 7 cases; metastatic brain tumor, hereditary type, post encephalitic, and fracture of the skull, three cases in each category; xanthomatosis, myeloid leukemia, chorea, two cases each; and one case due to each of the following — lymphoma, sarcoid cerebral arteriosclerosis, birth injury, calcified internal carotid artery, post vaccinal and basal arachnoiditis. The genetic factors in the so-called hereditary type of diabetes insipidus are remarkably well worked out in the study of Cannon (5), however, his report is seriously compromised by the lack of physiological studies on the patients whose family histories he reports.

Diabetes insipidus can be a disabling disease in so far as the patient may spend a great deal of time between the water fountain and the urinal. Fortunately, almost all these patients respond well to replacement therapy of the antidiuretic hormone. Partially purified hormone prepared from the posterior pituitaries of beef and hogs may be administered once daily in a slowly absorbing tannate-in-oil preparation. Another convenient form is via the nasal insuflation of posterior pituitary powder. Although the powder must be administered a few times during the day it has the advantage of not needing hypodermic injection and further of being considerably cheaper in cost. Occasional patients find the nasal insuflation disturbing and others note that the inflammation, etc. associated with upper respiratory infections markedly reduces the effectiveness of the posterior pituitary powder. It is of interest to note in passing that although posterior pituitary extracts of the hog are effective in man, the pig is unique among those animals studied so far in that the amino acid lysine is substituted for the arginine found in the peptide hormone of man, beef, and dog.

Psychogenic polydipsia: If study of the patient with polydipsia indicates that there is no glycosuria or renal disease and the patient is able to secret antidiuretic hormone, the diagnosis of psychogenic polydipsia must be entertained. Such patients very often present other evidences of emotional disturbance which may range from minor neurotic behavior to severe psychosis. In an excellent study of nine cases of compulsive water drinking Barlow and De Wardener (2) review

the difficulties of differentiating this behavioral disorder from true diabetes insipidus. They point out that in certain instances the salt loading test and deprivation of water procedures may indicate that the patient is not able to secret antidiuretic hormone. And yet the use of vasopressin tannate-in-oil does not lead to an amelioration of symptoms but may instead produce symptoms of water intoxication with weight gain, nausea, and headache. In both diseases the vasopressin reduces urin flow and, subsequently, the fluid intake decreases. In true diabetes insipidus the replacement therapy makes the patient feel better, whereas a decrease in drinking in a patient with psychogenic polydipsia may be due to the fact that he feels ill with water intoxication. These authors have made a most significant contribution in noting that the plasma osmolality in compulsive water drinkers tends to be lower than normal, whereas in diabetes insipidus it tends to be elevated above normal. They also note that of the 19 cases of compulsive water drinking which had been studied and reported in the literature, 79% were women, in contrast only 41% of reported patients with diabetes insipidus were female. Another point of clinical differentiation is that the polydipsia in diabetes insipidus tends to be constant whereas in the psychogenic disorder it is often episodic. The treatment of psychogenic polydipsia is best achieved in close collaboration with a psychiatrist for attempts at direct suggestion and simple reassurance have relatively little effect. In short, one would handle such a patient as one does any other behavioral disturbance; with general sympathetic support if the disease is not severe and psychiatric aid is not available, or with psychiatric referral if the severity of the disorder merits it.

Hypodipsia: We have discussed above a variety of conditions which lead to symptoms such that the patient brings them to our attention. We now enter an area which is much more difficult for most often the patient cannot describe to us the water deficit which insidiously develops and which may be lethal. Let us start again with consideration of diabetes mellitus but now consider the patient whose acidosis and other metabolic disorders have resulted in stupor or coma. The large renal loss of water and electrolytes continues despite the coma and unless the clinician is prompt and vigorous in replacement therapy death may ensue. Similar dehydration may develop when the patient's clouded sensorium has obtunded his thirst sensation or when he cannot make his needs known.

Although the principles of fluid replacement in the unconscious patient needs no review here, however we sometimes lose sight of the fact that dehydration may develop slowly in the patient with severe psychoses or in those who are disoriented due to organic disease. There are no documented clinical instances of total adipsia as described (1) in the dog. There are, however, a number of instances of hypernatremia reported sometimes following neurosurgical intervention (10), and sometimes appearing spontaneously (7), but in none of these clinical observations could it be said that true hypodipsia existed so that in man at least hypodipsia is a clinical problem only in the presence of a disordered sensorium.

SUMMARY

The differential diagnosis of polydipsia has been reviewed along with relevant basic physiological experiments. We have emphasized the importance of great care in regulating the water intake of the disoriented patient.

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A RESOLUTION

Doctor Allie Carl Kolb, psychiatrist, died October 31, 1959. Those of us who were privileged to know him well share with the family sorrow in his passing. Early in his medical career, he demonstrated his concern for the most underprivileged of all our sick — the mentally ill — and he spent the rest of his life doing everything he could to further the cause in their behalf.

He was a man of vision, recognizing the necessity of attacking the problem of the mentally ill from every possible angle, which he did. He was instrumental in getting legislation passed to cope more adequately with the legal aspects of this type of illness. He never stopped in his insistance that society as well as the medical profession itself, must change many of its archaic ideas regarding this largest group of sick people, that they could be helped if we ever made an honest effort to help them and that they were just as deserving of help as any other group.

The State Hospital stands today as a monument to his efforts in behalf of the mentally ill. He was the pioneering spirit in the development of the present more adequate provision for the State Hospital. There are few families in Arkansas today that have not been the recipients, to some extent, of the good works of Dr. Kolb.

Dr. Kolb served as clinical director of psychiatry at the University of Arkansas School of Medicine and the Law School. He was a member of the Pulaski County, the Arkansas and the American Medical Societies, the Mid-Continent Psychiatric Society and was a Fellow of the American Medical Association, a Diplomate of the American Board of Psychiatry and Neurology, a charter member and first President of the Arkansas Psychiatric District Branch Society and a member of the Board of the Arkansas Baptist Hospital. He was a member of the Little Rock Rotary Club, Pulaski Heights Masonic Lodge and Little Rock Consistory. He was a member of the Board of Trustees and a Deacon of the Pulaski Heights Baptist Church, of which he was a revered member the seventeen years he lived in Little Rock.

Be it resolved that this Society extend to his wife, Mrs. Amanda Payton Kolb, and to his son, Dr. William Payton Kolb, and other members of his family our deepest sympathy, and that copies of this resolution be sent to the Arkansas Medical Journal and to the bereaved family.

Resolution Committee:
Robert Carnahan, M. D.
Howard Dishongh, M. D.
N. T. Hollis, M. D., Chairman

Read and adopted December 1, 1959

What Is Your Diagnosis?



FOR ANSWER SEE PAGE 364

Arkansas Public Health at a Glance

The American Medical Association recently sponsored their biennial Conference on Physicians and Schools with the theme this year concerned with the fitness of American youth. The results of this conference bear out the feeling held by the public health profession of Arkansas for a number of years: there is a problem of fitness in our young people, but no one seems to be able to define it very well and certainly there is no agreement on any solution.

Public health in Arkansas has long been concerned with the fitness of all of our citizens, from the standpoint of total fitness and also from its more basic parts such as physical fitness, dental fitness, nutritional fitness, etc. However, in the past several years results of certain tests of physical performance given on a national scale to our young people have shown that our citizens have not fared well when compared to their counterparts in Europe. Poor showing in these tests, primarily of physical strength and agility, has been blamed on any number of factors. Regardless of the cause, it is agreed that many of our young people are not capable of meeting the demands of daily living and retaining a satisfactory reserve of energy and stamina.

Studies have been carried on in Arkansas to determine the status of fitness of our youth. These, as all such tests, are somewhat suspect as valid instruments for measuring the fitness of our boys and girls to do the things that are demanded of them; however, they go a long way toward showing how our youth compare with the youth of the nation in these phases of physical strength and agility.

The results of one set of these tests are shown here. These were administered to about 1,300 high school students in selected schools. The testing was supervised by the Arkansas Association of Health, Physical Education and Recreation, and the Department of Education.

BOYS

AGE	PULL-UPS		SIT-UPS		STANDING BROAD JUMP		50 YD. DASH		SOFTBALL THROW	
	Avg. Score	Natl. Pctg. Rank	Avg. Score	Natl. Pctg. Rank	Avg. Score	Natl. Pctg. Rank	Avg. Score	Natl. Pctg. Rank	Avg. Score	Natl. Pctg. Rank
12	3	70	72	88	5′4″	60	8.3	40	116′	57
13	4	75	81	92	5′6″	55	7.9	45	123′	53
14	5	75	79	87	5′11″	55	7.5	50	141′	52
15	7	80	85	87	6′6″	62	7.2	45	163′	59
16	7	70	70	79	6′8″	50	7.1	35	163′	48
17	8	70	71	84	7′1″	57	6.8	50	178′	52

GIRLS

AGE	MODIFIED PULL-UPS		SIT-UPS		STANDING BROAD JUMP		50 YD. DASH		SOFTBALL THROW	
	Avg. Score	Natl. Pctg. Rank	Avg. Score	Natl. Pctg. Rank	Avg. Score	Natl. Pctg. Rank	Avg. Score	Natl. Pctg. Rank	Avg. Score	Natl. Pctg. Rank
12	33	65	34	85	5′1″	78	8.3	65	71′	71
13	29	56	32	86	5′5″	85	8.3	57	74′	59
14	31	64	33	89	5′2″	70	8.1	70	77′	64
15	31	71	30	87	5′2″	65	8.3	60	76′	53
16	28	65	23	67	5′2″	60	8.7	35	72′	41
17	31	71	22	67	5′5″	65	8.5	55	78′	49

Editorial

Hypersensitivity to Insects

Alan G. Cazort, M.D.

Recognition of hypersensitivity to bites, stings, and emanations of insects is not new. Goldberger and Schamberg described dermatitis from pediculoides in hay in 1909. In 1929 Parlato reported a case of asthma due to inhalation of the scales and debris from swarms of the caddis fly. More recently the popular literature has taken cognizance of the fact that stings from the hymenoptera (wasp, bee, ant, hornet, etc.) may cause anaphylaxis and even death.

This reaction is not specific for the venom but for the entire body protein of the insect. The venom happens to contain the protein. Allergists have for years "desensitized" these patients with an extract of the entire insect. They have done this with more hope than conviction. Now, however, sufficient evidence has accumulated through design and through accident to indicate that the procedure is highly protective and that the protection is of long duration if indeed not permanent.

It is always highly desirable to know the specie of the insect, whether wasp, bee, etc. The sensitivity is usually specific. Frequently the patient is not sure whether the offender was a wasp, bee, or yellow jacket. In such cases a polyvalent antigen may be prepared. This is a simple aqueous extract of the defatted insect usually on the order of 5% by dry weight. Serial dilutions are made and the patient is given weekly injections of gradually increasing doses.

It is the present thought of allergists who are most familiar with this procedure that after building up to a certain maintenance dose, this dose should be repeated monthly for two or three years. It is possible and even probable that a much shorter period of treatment would be effective.

MEDICINE IN THE NEWS

Dr. Robins Addresses the National Association of Retail Druggists

Dr. Robins stated that physicians and druggists have multiple areas of common interests in their work and in the role they play as citizens. Pharmacy shares with medicine the objective to provide the best possible health care for the people of the United States.

Moreover, physicians and druggists have an additional obligation. They must think in terms of public service and responsibility in conjunction with compensation or profit. "We have a clear right to feel worthy of our hire. But we should reject the jungle philosophy of 'charge the most the traffic will bear.'"

The guide to follow: "What is best for people" (not just what is best for the doctors or the drug store owners). It is a basic philosophy in the public interest.

It is essential that we be ever alert to faults or deficiencies that may exist in the way of life called America. "We must try harder to anticipate needs and problems BEFORE they can be used as pawns in the game of political expediency."

Adequate medical care for the aged with low incomes has received considerable attention from the A.M.A. The House of Delegates of the A.M.A. has called on the physicians of the country to adjust their charges to a level that will permit the development of insurance and prepayment health plans with reduced premium rates for the oldsters of the population.

The medical profession welcomes advice, support and cooperation from pharmacy in order to realize the full potential of the positive approach in the field of health care.

Army Needs Doctors

The Surgeon General of the United States Army has announced the need for Doctors of Medicine for assignment to U. S. Army Medical facilities throughout the world.

Doctors in all branches of the Medical profession, with the exception of Pediatricians, Anesthesiologists, and Ophthalmologists are encouraged to apply for active duty with the U. S. Army. Applicants, upon acceptance, will be called to active duty for three years or they may volunteer for indefinite tours beginning in April of 1960.

Grades of appointees will be determined by number of years of participation in professional activities. Medical school and internship will be counted both for pay and for determining initial grade of applicant.

For further details and applications, interested Doctors in Arkansas, Louisiana and Oklahoma should contact Lt. Col. W. H. Dickerson, Headquarters, Oklahoma Sector Command, XIX U. S. Army Corps (Reserve), 1101 N. Broadway, Oklahoma City, Oklahoma, Telephone: CEntral 5-4555.

Unsaturated Fats Alone Do Not Lower Cholesterol

Addition of unsaturated fats and oils to the otherwise unchanged ordinary diet will not reduce blood cholesterol and prevent heart attacks and strokes, the Food and Drug Administration said today. Representations to the public that salad oils, shortenings, oleomargarine, and similar products have value for these purposes are false and misleading and will cause such products to be misbranded, FDA declared in a statement of law-enforcement policy published in today's Federal Register.

George P. Larrick, Commissioner of Food and Drugs, said there is widespread interest in the possible relationship between blood cholesterol levels and heart and artery diseases. As a result, he explained, reference to the term "cholesterol" in the labeling of common foods now being offered to the public may have the effect of a claim of special value for preventing or treating these diseases.

Commissioner Larrick added:

"Scientific investigations of fatty substances as a possible factor in lowering blood cholesterol and preventing heart disease should be continued, and this policy statement does not interfere in any way with legitimate research and clinical evaluation of unsaturated fats in the diet. It is our responsibility, however, to point out that the public has been mis-

led into relying prematurely on data which are still experimental, incomplete, and contradictory, and to head off false and misleading promotions based on such data."

Cholesterol, FDA explained, is a substance that is manufactured in the body and has an important function in many of the body tissues. It is also present in animal fats and oils such as butter, lard, bacon, and meat fat. The blood level of cholesterol is controlled largely by synthesis in the body and is affected very little by the amount present in our foods.

FDA further pointed out the view of nutrition scientists that it is impracticable for a person to add enough unsaturated fats to an otherwise unchanged diet to bring about any significant change in blood cholesterol. Increased weight they added, is the only result that is likely to be achieved by increasing the intake of fats.

New Vaccine Will Protect Recruits Against Respiratory Diseases

"The Army will soon launch a campaign against respiratory diseases which, during the winter, affect 80 per cent of new recruits," says Lt. Col. Joseph W. Cooch, MC, a communicable disease authority in the Army Surgeon General's Office.

"Beginning in the near future adenovirus vaccine will be given to all new recruits," Colonel Cooch said. "Although this is not the long-sought cold prevention vaccine," he added, "tests have shown it to protect these men against adenovirus-caused respiratory infections which account for fifty per cent of Army-wide recruit disease.

Although the disease is not fatal, 5-10 per cent of adenovirus infections among new recruits develops into mild pneumonia. Symptoms of respiratory disease caused by adenovirus include fever, coughing, nausea and aching muscles.

American Academy for Cerebral Palsy

LOS ANGELES, Dec. 2 — Dr. George W. N. Eggers, professor of orthopedic surgery, University of Texas Medical Branch, Galveston, this morning was chosen president-elect of the American Academy for Cerebral Palsy, during the final day of the 13th annual session, at the Statler-Hilton hotel here.

Dr. Eggers will assume the presidency in 1960. Next year's meeting will be held Oct. 5-8 at the Penn-Sheraton Hotel, Pittsburgh, Pa.

Installed as president this morning was Dr. Raymond R. Rembolt, University Hospital School, University of Iowa, Iowa City.

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AMA CLINICAL MEETING NUMBER*

No. 650 December 7, 1959

AMA HOUSE OF DELEGATES READJUSTS ITS POLICIES

In Dallas last week, American Medical Association reexamined its positions on several issues. Generally speaking, actions taken by House of Delegates moved organized medicine further to the right. In matters having governmental implications, these are highlights:

International Health — Withdrew support of U. S. financial aid to international medical research, as authorized in Senate-passed S. J. Res. 41. Action, in effect, nullifies indorsement presented on Capitol Hill last winter by Dr. Gunnar Gundersen, then president of AMA, and urges Congress to hold up on S. J. Res. 41 pending "over-all assessment of proposals . . . dealing with domestic and international medical research."

Free Choice — Modified action taken last June in direction of greater tolerance toward closed panel medical care plans. Many delegates charged American press with misinterpreting Atlantic City statement of policy as an outright embrace of systems represented by New York's HIP, Permanente on West Coast, mine union hospitals, etc. In what is intended to be a clarification of viewpoint, AMA has approved a resolution which, in spirit, restores "free choice" to the pinnacle it occupied before last June.

Aviation Examiners — Enthusiastically gave green light to Federal Aviation Agency to adopt new rule requiring that physical examinations of private pilots be given by designated medical examiners. FAA wanted to introduce this rule months ago but was hit by such a volume

of protests — by doctors as well as pilots — against this alleged abridgement of free choice that the change was delayed indefinitely.

Care of Veterans — Rescinded recommendation of June, 1958, that deans' committees restrict their activities to veterans hospitals admitting only patients with service-connected disabilities. This was not practical, it was explained.

Forand Bill — Approved characterization of HR 4700 by Council on Legislative Activities as "a clear-cut and direct threat to the private practice of medicine." Also indorsed the warning by Dr. Louis Orr, president: "The Forand bill is the opening maneuver in a scheme to bring Federally controlled medicine to the United States, step by step." Note: other news on inside and back pages.

RAYBURN & JOHNSON GIVE AMA ADVICE ON LOBBYING

Featured speakers of last Tuesday's opening session of House of Delegates were Texas' leaders on Capitol Hill, Senator Lyndon Johnson and Rep. Sam Rayburn. Both stressed importance of AMA's keeping in step with the times. "Be static and you go backwards," said Speaker Rayburn. Do your own lobbying, he counseled, and don't send someone to Congress to do it for you. Senator Johnson praised Cecil Dickson, chief lobbyist in AMA's Washington office, whose friendship with the two Texas leaders played a large part in bringing them before the Dallas meeting.

"Mr. Sam" gently chided AMA for having sent material out of Chicago in the past which smeared a whole political party with the brush of socialized medicine. His protege's 50-minute speech — twice the length of the Speaker's — was a political display from the top drawer. Senator Johnson did not underestimate potential of his capacity audience of doctors, drawn from every section of U. S. He drew on all his platform charm to make the most of it.

Besides whacking the Forand bill, President Orr urged physicians to take a more active interest in public life and appealed to them and their groups to do all possible to steer promising youth into medicine.

Insufficient Funds? — The Main delegation introduced a resolution suggesting more funds be budgeted for AMA's Council on National Defense to support increased duties and responsibilities. On reference committee's recommendation, however, no action was taken.

Competence of Examiners — While AMA's concurrence that flight physicals should be performed by especially qualified physicians will strengthen position of Civil Air Surgeon in FAA, it does **not** clinch adoption of a Federal regulation excluding all but FAA-designated examiners from the authority to conduct these examinations on Class 3 pilots. Opposition to this innovation remains formidable.

AMA's Council on Industrial Health indorsed the proposal of Civil Air Surgeon and Board of Trustees assented. Now this stand has approval of the association's voting body.

Tussle Over Free Choice — On the House floor, the only issue to be debated was the one that created the greatest stir in reference committee deliberations which went before, namely, whether AMA ought to water down the bold stand it took last June on sufferance of the so-called closed panel medical care plans. In committee hearings, charges were heatedly aired that the country's press had misinterpreted the action taken in Atlantic City.

The reference committee, after hours of testimony-taking and more hours of discussion in executive session, came up with a compromise statement. However, this was rejected on the floor and by a vote of 121 to 58 the following was substituted:

"Lest there be any misunderstanding, we state unequivocally that the AMA firmly subscribes to freedom of choice of physician and free competition among physicians as being prerequisites to optimal medical care. The benefits of any system which provides medical care must be judged on the degree to which it allows or abridges such freedom of choice and such competition."

MEDICARE LOAD RISING STEADILY, CHIEF SAYS

Today is third anniversary of Medicare program. It has expended more than

$200 million for civilian medical and hospital services to 800,000 dependents of military personnel. (Physicians have received 51 per cent of the outlay and hospitals 49 per cent). Together, military and civilian hospitals have cared for nearly 2 million cases in past three years. But impressive as these figures are, they will be eclipsed in next 3-year period, according to Brig. Gen. Floyd L. Wergeland, executive director of Office for Dependents' Medical Care.

BIG INCREASES PROJECTED

In current fiscal year, Medicare spending will approximate $67 million, Gen. Wergeland told the AMA-sponsored Medical Services Conference in Dallas. Costs will go up to $82.6 million next year, beginning July 1, 1960, based on continuation of the liberalized benefits due to be reinstituted Jan. 1 next. Projections to 1964 indicate an uninterrupted curve upward because a larger proportion of servicemen are married, family sizes are increasing and so is enlistment rate.

Marital rate was 41.7 per cent in 1955 and 51.4 per cent in March, 1959. It is expected to be 55 per cent in 1964. The number of children per family went from 1.27 in 1956 to 1.61 this year and expectancy for 1964 is 1.75.

Dependent wives and children will total 3,780,000 in 1964, for an increase of 240,000 over the number eligible for Medicare benefits last March, Gen. Wergeland believes. He told the conference that a requirement of 850,000 hospital admissions by 1964 is a conservative outlook.

"Basically, it is our thought that uniformed service hospitals will continue to care for dependents of active duty servicemen at about their present level, while the civilian physician-hospital team will supply an increasing fraction of the total dependent care required," said the Medicare director. "This assumes, of course, that the Congress both approves this basic philosophy and appropriates the money to pay for the program."

Civilian hospitals and civilian physicians will give an increasing share of medical and surgical services to military dependents in the years to come, the speaker said.

"After showing the facts in detail, especially the certainly increasing demand for care by retired personnel, we conclude that service hospitals will not be in a position to expand their capacity for serving dependents of active duty personnel beyond their current optimum figure of 427,000 admissions a year.

"At present, service optimum capacity for dependents of active duty personnel is somewhere in the neighborhood of 60 per cent of the over-all requirement. Within the next few years, although remaining constant in absolute terms, service hospital capacity for handling these dependent cases will probably fall to 50 per cent or less of the total requirement.

"Perhaps we have been somewhat behind in our planning but we are initiating remedial action at this time and, by so doing, we may in some small way set a good example for many civilian communities who are confronted with a similar problem."

Global Giveaways Spiked — In committee hearings, attacks on AMA's support of the bipartisan Senate resolution to bolster international medical research were so fierce that there was never any doubt that a reversal of policy was inevitable. Delegates from California, Arkansas, Texas and other states castigated S. J. Res. 41 as a $50 million giveaway.

Dr. Gundersen, immediate past president, was left high and dry by House approval of a statement of policy which brands S. J. Res. 41 as "vague" and concludes that nothing should be done to help enactment of this legislation until a thorough investigation of all domestic and foreign medical research is conducted and completed.

Governmental Services — By impetus of California delegation, House of Delegates adopted a resolution whose purpose is to stress that the Medical profession, not governmental agencies, supply medical services. "The government is only providing for the payment or reimbursement for such medical services," the resolution states, in part. It calls for AMA to "expend every effort to revise the wording of those statutes which state in effect that the government is providing such medical services."

Medical West Point — The House backed up action of Board of Trustees in

opposing legislation that would establish a U. S. Armed Forces Medical Academy. Creation of such an institution has been the subject of Congressional bills from time to time, though it has been several years since the idea was under serious consideration on Capitol Hill. The scheme has never had the backing of Army, Navy or Air Force.

IN FEWER WORDS

At Medical Services Conference in Dallas last Monday, David F. Lawton, of Civil Service Commission, said "we will do all we can to discourage Federal workers from purchasing duplicate coverage;" that is, buying health insurance at their own expense to supplement that which will be provided as a fringe benefit beginning next July . . . coolness with which his announcement was received portends trouble . . . attendance at AMA's 13th Clinical Meeting was well under the 10,000 which was anticipated and commercial exhibitors grumbled . . . approval in principle was given a Maryland resolution calling for a hearing in Congress into rising cost of providing medical care at Federal expense for veterans having nonservice-connected conditions . . . at reference committee hearings on U. S. support of international medical research, it was disclosed that the reorganized Council on Legislative Activities had no advance knowledge of Dr. Gundersen's appearance before a Senate committee to urge passage of S. J. Res. 41 . . . Federal and other agencies making research grants to nonprofit institutions should make full reimbursement for overhead costs, according to AMA's Council on Medical Education and Hospitals, which received indorsement by House of Delegates.

**Washington Report on the Medical Sciences*

ANNOUNCEMENTS

Annual Texas Medical Cruise

The University of Texas Postgraduate School of Medicine is pleased to announce the faculty for the Annual Texas Medical Cruise to the Caribbean; **Alfred E. Leiser,** M.D., Clinical Instructor in Medicine, Baylor University College of Medicine; Clinical Assistant Professor of Medicine, the University of Texas Postgraduate School of Medicine, Houston, Texas.

L. Maxwell Lockie, M.D., Professor and Head of the Department of Therapeutics, University of Buffalo School of Medicine, Buffalo, New York.

Jarrell E. Miller, M. D., Clinical Professor of Radiology, The University of Texas Southwestern Medical School, Dallas, Texas, **Fred M. Taylor, M. D.,** Associate Professor of Pediatrics, Baylor University College of Medicine, Houston, Texas.

This 14 day cruise will depart from New Orleans on May 6, 1960 and return to New Orleans on the 19th. The ports of call will include: Havana, Cap Hatien, Port-Au-Prince, Montego Bay, Grand Cayman.

This itinerary will allow 25 hours of Category 1 teaching credit for physicians desiring AAGP credit.

Postgraduate Teaching Film Program

The German Medical Association, host of the XIVth General Assembly of The World Medical Association, scheduled to convene in West Berlin, September 15-21, 1960, is planning to have an extensive Medical Film Program.

The 1960 Annual Meeting of the Southern Trudeau Society (and the Southern Tuberculosis Conference) will be held on September 14, 15, and 16, 1960, at the Hotel Francis Marion, in Charleston, South Carolina.

The SCOTT AND WHITE CLINIC announces its EIGHTH ANNUAL POSTGRADUATE CONFERENCE stressing **Current Topics in Medicine and Surgery.** This program, sponsored by Scott, Sherwood and Brinkley Foundation and the University of Texas Postgraduate School of Medicine, will be presented in Temple on March 6, 7, 8, 1960. Registration forms can be obtained from Scott, Sherwood and Brindley Foundation, Scott and

White Clinic, Temple, Texas. Approved Credit for General Practice — 20 hours. Registration Fee — $25.00. The wives are cordially invited. A full round of social activities, including luncheon and dinner, are planned and are covered by the registration fee.

Obituary

Dr. Robert Herman Willett, 78, prominent Jonesboro physician and radiologist died in St. Bernard's Hospital of acute lymphatic leukemia.

Born March 31, 1881, at Paducah, Ky., Dr. Willett came to Jonesboro in 1912 as a general practitioner. He was the last of the pioneer doctors who were largely responsible for Jonesboro's development as the medical center of Northeast Arkansas.

Dr. Willett attended the University of Louisville, first getting his degree in pharmacy. He worked as a pharmacist in Pine Bluff and Paducah shortly after the turn of the century for about three years before returning to the University of Louisville to get his degree in medicine.

He interned in Louisville and at the Illinois Central Railroad Hospital in Paducah, then began his practice in Paducah. After doing post-graduate work at Cook County General Hospital, Chicago, in radiology, Dr. Willett moved to Jonesboro in 1912. He has been there since.

Dr. Willett was closely associated with the radiology department at the hospital throughout the years, helping to develop the department. He served as a general practitioner until about 10 years ago when he gave up his practice and devoted full time to radiology.

He was an active member of Blessed Sacrament Catholic Church, was a Fourth Degree Knights of Columbus, a member of the American Medical Association, the American Radiological Society, Arkansas State Medical Society, the Craighead-Poinsett Medical Society, the Rotary Club and Woodmen of the World.

Mrs. Willett preceded her husband in death, passing away September 14, 1958.

Survivors include one brother, J. D. Willett of Fancy Farms, Ky.; three nephews, Herman, J. C. and Foster Willett, and two nieces, Mrs. G. G. Daniel and Mrs. C. G. Trevathan, all of Jonesboro.

Dr. W. P. Cooksey of Magnolia, 87, one of Columbia County's oldest physicians, died Nov. 22 in his home after a long illness.

A native of Claiborne Parish, La., Dr. Cooksey was graduated from the Nashville, Tenn., medical school and received his post graduate work at Tulane University, New Orleans, La.

He began practice in his home town in Homer, La., then moved to Atlanta in Columbia County in 1906. In 1919 he came to Magnolia where he engaged in general practice until his retirement in 1946.

He was a member of the American Medical Association, a past president of the Columbia County Medical Society, a deacon of Central Baptist Church and a 32nd degree Mason.

Survivors include his widow; a son, J. D. Cooksey of El Dorado, a daughter, Mrs. W. H. Estes of Scott; two sisters, Mrs. C. S. Fortson and Miss Mattie Cooksey of Homer; four grandchildren and five great grandchildren.

Answer to What Is Your Diagnosis?

BRAIN — CRANIOPHARYNGIOMA

The patient is a seven year old female with a history of nausea, vomiting, headache and failing vision for 3 months.

The craniopharyngioma also known as the hypophyseal stalk tumor and Rathke's pouch tumor is usually readily diagnosed on roentgen examination. It is usually calcified and produces enlargement and deformity of the sella turcica. The calcification is usually distributed in a flocculent pattern through the tumor, however, a thin rim-like calcification at the periphery of the tumor is also seen on occasion. The tumor as in this case is usually located a short distance above the top of the sella but in rare instances it develops within the fossa and extends into it from its extrasellar location. Other tumors such as meningioma produce calcification in this region but they are relatively rare.

Personals and News Items

A pre-dawn fire badly damaged the medical clinic owned and operated by two Conway physicians, Dr. B. F. Banister, Jr., and Dr. Keller Lieblong. The equipment was moved to a residence at 320 Center Street where the doctors will establish temporary headquarters.

Dr. R. B. Robins was guest speaker at the Camden Business and Professional Woman's Club in November.

Dr. J. H. McCurry of Cash, Arkansas, advises that he has American Medical Association approval to organize a national Fifty-Year-Club within the AMA. Dr. McCurry is anxious to hear from physicians who have been in practice fifty years or more who desire to be members of the club. He anticipates that the first meeting will be held in connection with the A.M.A. Clinical Meeting in Washington, D. C., the latter part of November 1960.

At the December meeting of the Van Buren School board, Dr. A. E. Thorne was re-elected president of the Board.

Dr. John Smith, long-time Paris physician, was presented the Community Service award by the Subiaco Alumni association at a banquet held December 8th.

Ground was broken in Wilson for a $60,000 medical and dental clinic. Drs. N. B. Ellis, D. H. Blodgett and J. W. Reynolds — all currently practicing in Wilson — will lease the facilities on its completion.

Dr. W. T. Lowe, widely known Pine Bluff physician who recently retired, was honored at an Appreciation Night dinner party in December.

A reception honoring Dr. W. J. Hunt, a retired physician of Magnolia, was held in the Macedonia School auditorium. Dr. Hunt served 58 years in the medical profession. He observed his 83rd birthday December 13.

Dr. G. Allen Robinson was elected chief of staff of the Boone County Hospital medical staff for 1960. He succeeds Dr. A. R. Hammon. Dr. H. M. Fogo was named vice chief of staff and O. C. Estes, Hospital Administrator, secretary-treasurer.

A three-man "liaison committee" representing some North Little Rock doctors who oppose the tentative site for the new city hospital recommended yesterday that the building be placed in the Spring Hill area near Lakewood.

The city Hospital Commission has an option on a 40-acre site in the western section of the city near the Veterans Administration Hospital.

Dr. R. B. Robins, past president of the American Academy of General Practice, and a member of the Board of Trustees of the American Medical Association, appeared as a witness at the 1959 hearings on HR 4700, known as the Forand Bill. He testified against this bill before the House Ways and Means Committee in Washington.

The following physicians from Arkansas attended the AMA meeting in Dallas December 1-4:

James M. Kolb, Clarksville, Fount Richardson, Fayetteville; George H. Butler, Fayetteville; Charles P. Harris, Caraway; J. A. Henry, Russellville; Art B. Martin, Fort Smith; J. H. McCurry, Cash; Fay B. Millwee, McCrory; Harry E. Murry, Texarkana; R. B. Robins, Camden; Malcolm W. Davis, North Little Rock.

Dr. R. B. Robins of Camden has been appointed a medical consultant to the Department of Health, Education and Welfare.

Proceedings of Societies

The Garland County Medical Society Auxiliary was entertained at the home of Mrs. N. B. Burch of Hot Springs with the business session presided over by the president, Mrs. J. W. Leatherman.

Frank Brown of Merrill Lynch, Pierce, Fenner and Smith, gave an informative talk on investments.

United States Senator John McClellan was guest speaker at a meeting of the Craighead-Poinsett Medical Society December 1st. The Society held a second meeting December 2nd and Dr. Eugene Lewis, pediatric surgeon from St. Louis spoke on "The Diagnosis of Intestinal Obstructions in Children and Infants."

Dr. Charles Swingle of Marked Tree was elected president of the Criaghead-Poinsett Medical Society. Dr. Ed Cooper of Jonesboro was named vice president and Dr. J. H. McCurry of Cash was re-elected secretary.

Congressman J. W. Trimble addressed the Boone County Medical Society in November at Spring Lake.

Dr. J. Lex Moore was master of ceremonies, and Dr. Ross Fowler, councillor of the 9th Medical Society district, introduced guests.

Dr. E. Z. Hornberger was elected president of the Sebastian County Medical Society at a dinner meeting December 8th.

He succeeds Dr. Bob Thompson. Named president-elect was Dr. Jim Thompson. Dr. Boyd Saviers was elected secretary-treasurer.

Dr. John William Smith was elected president-elect of the Pulaski County Medical Society at its December meeting. He succeeds Dr. Robert D. Jones.

Dr. Joseph A. Norton, who preceded Dr. Smith as president-elect, was automatically elevated to the presidency at the election. Dr. Drew F. Agar was elected vice-president; Dr. William Lee Steele was named treasurer and Dr. John C. Baber, Jr., treasurer-elect.

Dr. Walter H. O'Neal was elected recording secretary and Gaston G. Fulmer was renamed executive secretary, a full-time position.

At the December meeting of the Washington County Medical Society, Dr. Larry Siegel of Fayetteville was elected president.

Other officers are Dr. Ed Wheat of Springdale, vice-president; Dr. Don Baker of Fayetteville, Secretary-treasurer; Dr. Coy Kaylor and Dr. Joe Hall of Fayetteville, delegates; and Dr. Wendall Ward and Dr. James Mashburn, alternate delegates.

Dr. O. C. Raney and Dr. L. Hutchison were named president of the Jefferson County Medical Society and chief of staff of Davis Hospital respectively.

Other officers for the Medical Society include Dr. Ralph R. Wooley, vice president and Dr. W. H. Handley, Jr., Secretary-Treasurer.

Vice chief of staff for the Hospital will be Dr. Louis K. Hundley, and secretary-treasurer will be Dr. H. L. Wineland.

Officers of both organizations will assume their new posts on Jan. 1.

The Pope-Yell County Medical Society has adopted a position of strong resistance against any effort to remove Dr. Douglas Lawrason as provost for medical affairs at the University Medical Center.

The Pulaski County Medical Society gave a vote of confidence to administrators of the state Medical Center.

The Society at the same time voted to "strongly condemn interference and harassment" by state non-educational committees and agencies in the field of higher education.

The fall meeting of the Ninth Councilor District (Arkansas Medical Society) was held the night of December 4th at the Springdale Country Club with eighty four members and wives being present.

The Audio-Visual speech of AMA President Louis Orr regarding the Forand Bill was presented.

The suspicion that Green County is not

exceptional in the Ozarks and that Arkansas takes a backseat to no one when it comes to amateur spoofing and fun, was confirmed by the entertainment program. A fast talking M.C., a twelve man "Medi Combo" orchestra, a two man blackface team, audience singing etc. were the basic frame work.

A parody song which was addressed to the Arkansas Medical Society and sung by the audience went as follows:

ADDRESSED TO ARKANSAS STATE MEDICAL SOCIETY

BEAUTIFUL DREAMER, wake un-to us,
Social-ized Medicin's Can-tanker-ous.
Sweet-ly Alluring, La Femme with V.D.,
Who can Re-sist her some-thing For Free.

Spurning her charms The Public won't Bear.
They've Hooked us Nicely With Old Medicare.
Multiple Forms we fill without fuss.
Sub-sequent Happenings make a Man Cuss.
Beau-ti-ful dream-er, a-wake un-to us.

Beau-ti-ful dream-er, wake un-to us.
Medicares Twistings are Oft' Treacherous.
First came the Sweet Coat, our Copi-ous Fee,
Next the ax fell with "Rates you can't see".
Cong-ress for-got to Appropriate mon-ey.
All care was stopped and the Mess was A Honey.
Acute Ills are all this con-tract will show.
The next may cur-tail to the Little left Toe.
Beau-ti-ful dream-er a-wake and Say NO!!!

Beau-ti-ful dream-er, We must do more,
Mulish Negation Fishbein Tried Before.
We must Proclaim to Lay-men the why,
Medicare's Passe' After a Try.
Hold down our charges, give better care,
Refuse to Ascend Cost's Spiraling Stair.
Be in the Van-guard searching how we,
Can help our patients to Afford our Fee.
Beau-ti-ful dream-er a-wake and lead me.

CONTRIBUTORS TO THE AMERICAN MEDICAL EDUCATION FOUNDATION

For the State of Arkansas, November 1959:

Woman's Auxiliary to the Craighead-Poinsett County Medical Society	$ 5.00
Dr. R. D. Dickins, Pine Bluff	25.00
Dr. Wm. T. Dungan, Jr., Little Rock	10.00
Dr. E. M. Gray, Mountain Home	50.00
Dr. J. M. Nisbett, Little Rock	5.00
Dr. H. W. Thomas, Dermott	20.00
	$115.00

LETTER TO THE EDITOR

December 2, 1959

Arkansas Medical Society
Little Rock, Arkansas
Dear Sirs:

I would like information on the following:

James B. Phillips; Born February 21, 1857, Died March 20, 1908. Was a medical doctor. He lived at Kirby, Arkansas, where he had his practice. He is buried at Phillipi cemetery in Hot Spring county, Arkansas.

George W. Hunt, MD. He lived in Hot Spring county. He was also a minister.

I want this information for a family record. Any help you can give me will be appreciated. I would like to know when they got their credentials, where they are recorded, where they got their training, etc.

Thank you.

Sincerely,
Mrs. Charles Lambert
201 Afton Street
Hot Springs, Arkansas

Book Reviews

THE PHYSICIAN AND THE LAW. By Rowland H. Long, Member Massachusetts and New York Bars, Assistant Professor in Forensic Medicine, New York University Post-Graduate Medical School. Second Edition. Pp. 302. 1959. Appleton-Century-Crofts, Inc., New York

The increased number of medical-legal cases in this country behoove the practicing physician to have as complete an understanding of the law as possible. Dr. Long's textbook discusses malpractice at considerable length. This is of great importance to the physician in view of the increasing

number of lawsuits involving physicians. There is a good discussion of the physician's defenses, and the rather touchy problem of using diagnostic aids as evidence is also briefly explained. Considerable space is alloted to discussing the responsibility of the physician in cases of violent or unexpected death. Other facets of medical-legal work are talked about in this 302 page textbook. This book is heartily recommended to the practicing physician and to the medical student. AKJ

A COOKBOOK FOR DIABETICS. Deaconess Maude Behrman, Pp. 171, 1959. The American Diabetes Association, Inc., New York, New York.

This textbook for diabetics seems to be very complete. Any physician who takes care of diabetic patients is constantly questioned as to the food value of certain foods. He is often besieged by patients who want recipes. This small cookbook supplies just such information and varies in price from 88c to $1.00, depending on number purchased. This is a publication of the American Diabetes Association, and as such, has their recommendation. This book is definitely recommended to all practicing physicians who are interested in diabetic problems. AKJ

THE EMERGENCY SYNDROMES IN PEDIATRIC PRACTICE, by Alfred J. Vignec, M.D., Clinical Professor of Pediatrics, New York University, College of Medicine, New York, N. Y., Medical Director and Pediatrician in Chief, New York Foundling Hospital, New York, N. Y., and Director of Pediatric Division, St. Vincent's Hospital, New York, N. Y. Pp. 382, Illustrated, 1959, Landsberger Medical Books, Inc., New York.

As in most books of emergency procedures one wonders whether it is really worth its salt if it is anything more than a very small pocket size paper bound manual. It seems to the reviewer that this well written book does not fill any notable nitch in the pediatric literature. The material present is well presented but for the most part it can be found in any standard textbook of pediatrics and in just as convenient form. This book is probably a satisfactory adjunct in the reading of medical students. It is not otherwise recommended. AKJ

TUBERCULOSIS ABSTRACTS

Sponsored by
The Arkansas Tuberculosis Association

TUBERCULOSIS AMONG THE NAVAJO

KURT DEUSCHLE, M.D.,
The American Review of Respiratory Diseases, August 1959

This account of a bold experiment in tuberculosis control is of great interest and import to everyone concerned with the ultimate eradication of the disease.

In July 1955 the Department of Public Health and Preventive Medicine, Cornell University Medical College, initiated a field health research project among the Navajo Indians in Arizona. The project, supported by the Navajo Tribe and the United States Public Health Service, developed from a Cornell research project in tuberculosis. The Navajos, now numbering 85,000, are the largest Indian tribe in the United States. They retain their own distinctive culture, language, and religion.

Tuberculosis has long been a major medical problem among them. However, during the past seven years, intensive efforts have had salutary effects on morbidity and mortality.

THE RESERVATION-WIDE PROGRAM

To understand what has happened, we should review the tuberculosis problem before the expanded Federal program became available in the fal lof 1952. In 1950 tuberculosis was a leading cause of death on the Navajo Reservation. There was only one tuberculosis hospital with one hundred beds for the entire tribe. Case-finding programs were abandoned because beds for treatment were not available. Miliary and meningeal tuberculosis were commonplace even in adults. Estimates of active disease among Navajos ranged between 2 and 3 per cent, and infection rates measured by positive tuberculin reactors were 50 to 60 per cent among school children in the six- to ten-year age bracket. In 1952 two major changes occurred. (1) A government program of contracting with off-reservation sanatoriums to care for patients with active infectious tuberculosis was established. (2) The new and potent anti-tuberculosis drug, isoniazid, became available.

The sole facility for the care of tuberculous patients on the reservation—the 100-bed tuberculosis service at Fort Defiance, Arizona—was made the focal point of the program. Cornell University Medical College supplied the professional direction of this facility.

The impact of this "crash" program in hospitalization combined with the widespread use of isoniazid was soon demonstrated. By 1957 there was a 40 per cent drop in mortality.

During the past seven years the situation has improved. The miliary-meningeal problem is vanishing; no patient with ac-

tive tuberculosis is required to wait for a hospital bed; and the tuberculin reactor rate among the six- to tenyear-olds in the reservation schools has fallen to levels of 20 per cent. The tuberculosis case register for 1958 for all Navajos showed that only 242 patients were now hospitalized, only 15 died of tuberculosis last year, and 171 were discharged from the sanatoriums and continued on chemotherapy.

It was obvious, however, that these gains in tuberculosis control might only be temporary unless some health measures could b extended into the home. A practical field program that would be effective had to be developed in the face of the cultural differences. Research was obviously needed and so the Cornell-Many Farms Project was initiated as a joint enterprise of the Navajo Tribe, the United States Public Health Service, and the University.

CORNELL FIELD STUDIES

The field health research project started in May 1956 and has been in continuous operation in an 800-square mile region in the Many Farms area of the Reservation. Within this district live 2,000 Navajos, about half of them in scattered camps in a dry sandy region; others, in the mountains and canyons to the west. To date, 1,600 Navajos in the area have been in the clinic, where between 400 and 600 visits are made per month. Complete histories and physical examinations have been obtained on 75 per cent, roentgenograms of the chest in 80 per cent, and tuberculin tests on 62 per cent of the 834 children less than fifteen years of age.

During the period January 1957 to May 1958 the prevalence of tuberculosis in a sub-section of the Project area was carefully studied. On the basis of the data obtained from films, tuberculin tests, and clinical examinations, the prevalence rate of tuberculosis among the 923 Navajos was 9 per cent for all forms of tuberculosis, 7 per cent for reinfection pulmonary tuberculosis clinically significant by roentgenographic examination, and 2.1 per cent for active reinfection pulmonary tuberculosis diagnosed by roentgenographic methods.

After the children who were tuberculin reactors were identified, prophylactic isoniazid therapy was instituted for a period of 12 to 18 months. Approximately 120 children, age six to ten years, have completed this chemotherapy program.

Only one child out of the 300 followed in surveys from May 1956 to May 1958 was observed to convert from negative to positive.

About 40 patients were treated with isoniazid while ambulatory because of the presence of active or questionably active pulmonary disease. Thus, a total of 160 patients have been carried on a self-administered isoniazid treatment program during the past three years.

Of the 2,000 Navajos in the Project district, 59 have been hospitalized for active tuberculous disease. If this community picture of the disease is representative of the tribe as a whole—and we believe it is —the magnitude of the tuberculosis problem is clear.

Finally, in this connection, the effectiveness of the hospital and chemotherapy programs can be further appreciated when it is observed that no person in the community died of tuberculosis during the three-year period that the Many Farms project has been in full operation.

Despite firmly held traditional beliefs in the etiology of tuberculosis and in treatment by native healing ceremonies, modern medicine for the management of this disease has been accepted on the Navajo Indian Reservation. Since the advent of an expanded hospitalization and chemotherapy program, the tuberculosis mortality and morbidity have tumbled steadily downward. Nevertheless, the presence of 7 per cent of clinically significant disease on the basis of chest films still marks the Navajo as a tremendously high prevalence group.

To achieve and maintain the control of tuberculosis on the Navajo Reservation, the medical staff should be able to keep a constant check on about 2,000 patients with active or recently active tuberculosis. There may be another 4,000 Navajos with clinically significant inactive pulmonary lesions. What is required here is a carefully planned, community-oriented, field tuberculosis control program which can provide the necessary medical supervision.

Navajos have demonstrated a willing-

ness to modify their traditions if they can be shown that change will lead to improvement. When physicians are also willing to modify some of their "scientific culture," the effective treatment of tuberculosis is assured.

Finally, it should be recognized that further and continuous control not only of tuberculosis but of all health problems in underdeveloped areas of the world requires an amalgamation of modern scientific techniques and a sensitivity to indigenous cultures.

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The Importance of Unrestricted Diet In Treatment of Peptic Ulcer*

E. A. MARSHALL, M.D., F.A.C.P.**

If the title of this paper sounds radical to the reader we can only answer that it is radical in its conservatism. There has been no real medical advance in the treatment of peptic ulcer since the days of Sippy with the possible exception of Chron's use of aluminum hydroxide in place of absorbable alkalis and the development of anticholinergic drugs. The latter have proven to be of moot benefit since they, in at least 30-40% of the cases, alleviate the distress of open ulcer while having little effect on the level of the day to day corrosive acid.

Thus, many patients previously symptom free and encouraged because of lack of distress to enlarge the scope of their diet find themselves suffering hemorrhage, obstruction or perforation. Any investigator who has checked anticholinergic drugs will admit that short of doses which produce toxic crippling side effects, blocking agents are useless in controlling acid peptic activity.

The author, for fourteen years, followed the still-accepted medical treatment of peptic ulcer—low residue, non-stimulating diet, mild atropine-phenobarbital sedation and a token amount of antacid or adsorbent drugs, preferably after meals and at bedtime. His patients suffered their hemorrhages, non-stenotic obstructions and perforations and those who did not have complications just suffered.

Reassured by the lack of symptoms which are present about every quarter to half year for a month or so, they would forsake their unpalatable diet and suffer recurrence.

This "ulcer diet" was of importance in two ways to the author. First, it was kind to an open ulcer although low in iron and vitamin content and it helped him to keep his patient fairly happy while teaching him to live with an open ulcer. Second, it functioned as a 100% alibi and excuse for failure to remove this small pathological zone because he could always say, "Aha, you did not stay on your diet" or "you are smoking again", etc.

The x-ray laboratory helped considerably to make the doctor feel that there was no need to change his methods. It changed active ulcers to scar, healing ulcers and negative films at times when the patients were in the pain of open ulcer. Their pains were explained away as those of "nervous stomach". Further, the many patients who were seen while suffering periodic hyperacid syndrome simulating ulcer and who failed to show x-ray evidence of ulcer were not even given the benefit of our, then, questionable ulcer therapy.

For many years now we have been asking the question at the time of taking a history on a new ulcer patient: Have you ever been completely without symptoms for a full year while eating an unrestricted diet and taking no medication? This is a question that should be incorporated in the history taken by all doctors when interviewing new ulcer patients because the results will be surprising.

*Presented at the Arkansas Academy of Pediatrics, October 14-15, 1959 at Little Rock, Ark.

**2010 E. 102nd St., Cleveland, Ohio

The author found that only 302 of 3877 x-ray positive patients had ever been so fortunate. All others had had regular two to six periods of distress yearly. This represented a group of 7.8% who had been symptom free one or more years and most of these took no special medication or therapy when they started their healed period. Indeed, because of this we have labeled this group as having *"healed by accident"* though the probability is that changes in their emotional life were the reasons for the healing. Since so many ulcers fail to go one or more years without symptoms (92.2%) and since we have found that this state may be forced through adequate therapy we must conclude that these 302 patients, although suffering ulcer symptoms when first seen, had been healed and that they now had an ulcer in a new location.

An explanation of this last statement *is more the basis for this paper than the title.*

1. Given an open peptic ulcer:
2. It will be kept open by the acid peptic activity of a stimulated stomach whether the stimulus is vagal or hormonal.
3. Periodically, granulation tissue will be gained in the floor of this open ulcer and at such times the patient will be symptom free, but the ulcer will not be epithelized.
4. The interruption of the constant competition between the acid peptic activity and granulation tissue must be presumed to be due to lower levels of acid due to change in emotional status.
5. In any other location in the body, healing is progressive to completion unless interfered with by infection, low protein, lack of Vitamin C, edema, or tumor.
6. Adequate neutralization of hydrochloric acid sufficiently depresses acid peptic activity to permit progressive healing.
7. This apparently may occur as a result of radical change in emotional status (healing by accident).
8. Since the latter occurs so infrequently we chose to use adequate sedation in addition to adequate neutralization.
9. Progressive healing of a peptic ulcer must terminate in an epithelized scar.
10. Scar tissue resists acid peptic activity better than normal tissue.
11. Thus, a patient who is healed must form another ulcer. This does not happen in three or six months. (See below.)

Through work done on over one hundred patients we established that no antacid would keep pH sufficiently high or acid in clinical units sufficiently low to permit "forced" gain in granulation tissue if administered hourly. We therefore elected to treat all x-ray positive peptic ulcers every 30 minutes for 16 hours a day. Because of the high night acid the first four hours after retiring, we also added a bedtime medication (1, 2, 3, 4) and medication at 2 and 4 hours after retiring. The latter medications are given with milk, the only time when we used this food in our regimen.

We then established the criteria that a healing ulcer was one which, having been proven to be present by x-ray and on adequate sedative neutralizing and adsorbative drugs, could eat an unrestricted diet in 24 hours without distress. We took extra precaution with the gastric ulcer which will be dealt with in another paper today.

The method of administering this therapy has been outlined (1, 2, 3, 4), but we found that generally adequate therapy must neutralize a minimum of 14 litres of N/10 HCl. per 24 hours and there were other important precautions:

1. All medications used must disintegrate in cold water in less than one minute.
2. The sedative medication should not furnish sufficient anticholinergic action to mask an open ulcer.
3. As mentioned above, medication should neutralize 14 L. of HCl. (51 gm. pure hydrochloride) in 24 hours in vitro as measured by titration methods outlined by U.S.P.
4. The patient must be able to ingest an unrestricted diet without symptoms of any sort.

5. The medication must be administered every 30 minutes for 16 or more hours a day, at bedtime and in two and four hours after retiring.
6. The average patient may be considered as being healed if the above program is carried out without lapse for a period of four and one-half months, and there is no recurrence in the following year.

Of course, there are exceptions to the rule. Many patients appeared to heal and be symptom free for two or three years on much less than the advocated therapy. We could only categorize them as "easy to heal" ulcers. Indeed, 83.4% of the patients placed on the regimen advocated above appeared to heal. But there remained 16.6% who could not tolerate an unrestricted diet even though taking full therapy as outlined above and in this group we had to increase neutralization to 19.5 liters of N/10 HCl. When we were through, we found that 7.6% could not be helped or made symptom free no matter what amount of alkali or adsorbent we used.

Then, of course, we had to deal with complications. Perforation we relegated to the surgeon. However, hemorrhage and non-stenotic obstruction and short history gastric ulcer we felt should be handled medically. Here we found it advantageous to neutralize 28 liters of N/10 HCl. the first day, setting up a program which would give maximum neutralization the first 16 hours. Whether the patient entered the hospital in the morning or in the evening, we gave half-hourly heavy neutralization the first 16 hours. Then we reduced the amount of neutralization to around 20 liters per day and carried on for the duration of the hospital stay after which we kept the patients on ambulatory therapy for four and one-half months.

It might be mentioned that any antacid can be used to accomplish this. We used combination tablets containing calcium carbonate, magnesium oxide and phenobarbital and atropine together with aluminum hydroxide. Our tablets were standardized by titration methods recommended by U.S.P. However, any choice of antacids or adsorbents which will accomplish the above-mentioned amount of neutralization will be satisfactory and should give results commensurate with those outlined above.

An ulcer patient who cannot eat and drink everything without symptoms usually has an open ulcer.

An open ulcer is potentially dangerous. In this series it was the immediate cause of penetration with obstruction in 11.1%; perforation in 4.1% and hemorrhage in 25.6% of the cases.

Adequate antacid-sedative therapy prevents acid peptic activity from destroying *all* of the continuously forming fibroblasts, thus permitting healing to be in progress in the first 24 hours. This was proved in obstruction where, within 24 hours, the stomach with marked retention was made to handle unrestricted, full diet without symptoms.

Treatment may be considered adequate if the ulcer patient first seen on a diet and in distress is able to eat unlimited diet without symptoms in 24 hours.

It follows that any symptoms, following the ingestion of any food or drink at any time after 24 hours, are evidence that the ulcer is open, previous treatment has been inadequate and "heavier" treatment is necessary.

Most patients on an adequate regimen, half-hourly medication 16 hours per day and a minimum of two night or sleep-time treatments in addition to a bedtime treatment the other 8 hours, may discontinue all treatments at four and one-half months, continue unlimited diet and expect to be symptom free over one year as shown in the follow-up.

A healed ulcer not only lengthens the completely well periods but protects the patient from complications because the foods in a regular diet warn the patient the day his ulcer opens and all are instructed to re-start treatment immediately.

Using the concept that *the dose is enough* to permit granulation and epithelization of the ulcer, more ulcers can be healed. The recurrence or next ulcer must then be in a different place since scar tissue resists acid better than normal tissue. Ulcer personalities are fixed at seven years of age or under and a person

with an ulcer personality may go years before he develops his first ulcer. Is it not possible therefore that when dealing with healed, not healing, ulcers we may have to change the dictum, "a man must learn to live all his life with his ulcer?" The follow-up in this paper would seem to support this opinion.

We contacted 1036 patients who were treated up to July 1, 1955. All of these patients have enjoyed 34 or more months of relief from hyperacid syndrome while taking no medication and eating an unrestricted diet. Of 1036 only 446 had recurred while 590 had not recurred as of one year ago. In an average of 34 months 446 had recurred while 590 had not recurred in four years and ten months.

SUMMARY

1. This is a report covering 3877 peptic ulcers seen between July 1946 and July 1958 wherein 14 litres of N/10 hydrochloric acid were neutralized per day in an attempt to neutralize the corrosive effects of acid for a period of four and one-half months.
2. It is pointed out that though many will heal on less intensive therapy, there remains a group, 16.6%, who need more, *i.e.*, 19½ litres of N/10 hydrochloric acid neutralized per day and that 7.62% could not be healed medically.
3. The use of follow-up roentgenograms as a criterion of healed ulcer is probably inadequate.
4. We have outlined what we believe to be criteria for defining healing and healed ulcer.
5. Unrestricted diet was found to be useful in determining adequate treatment, the time of recurrence and defining medical failures. Medical methods which permit its use are outlined.

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Broad Principles of Medical Management In A Disaster**

Russell Scott, Jr., M.D.,*

The management of large numbers of casualties in a mass disaster has received increasing attention in recent years. This topic is of unusual importance to any physician in a community which is located within three hundred miles of a major industrial center. In case of atomic disaster these industrial centers including the physicians there will in all likelihood be destroyed. The casualties from the industrial community will be evacuated to the smaller communities located in most cases one hundred miles or more from the site of the disaster. There is, therefore, a reasonable chance that some of the physicians who read this paper may be called upon to treat a substantial number of injured people. Not only will they be called upon to treat such patients, but they may have to do this on their own. In no other branch of medicine will they be quite as alone as near the site of a disaster or upon receiving a large number of seriously injured patients at one time.

At a disaster the physician's responsibility is more than the personal care of a given casualty. If this were his only responsibility, the job would be simple. The physician is responsible for essentially all of the facets that effect all the patient care from the time he sees the patient until the patient is turned over to another physician.

The physician in charge of a disaster situation is responsible for many things. This physician is responsible for the acts and quality of work of the first aid people who work under him. He is responsible for the requisition of all non-medical equipment needed to accomplish his mission. This includes transportation for the medical staff and the wounded, electricity, and protection from the elements. The physician is responsible for the proper and prompt evacuation of the casualty from the site of injury to his aid station or to a hospital. He is responsible for the efficient maintenance, location, and organization of his aid station or hospital so that the most good can be done for the greatest number of casualties with the material and personnel he has at his disposal.

As in all branches of medicine the physician will have administrative assistance and helpers to do many of these things, but in the final analysis all the factors that affect the outcome of the patient will be his responsibility. The physician can and must, of course, delegate some of these duties; but again, the factors that influence patient care will remain his responsibility even though he had delegated some of the other duties. An awareness of the physician's responsibility is a key factor in a disaster situation.

Several concepts must be understood for the physician to have an appreciation of medical management in a mass disaster. First, he must understand what the deleterious effects of injury are and how these effects are harmful to an injured person. Second, he must understand what specific measures may be carried out to counteract or reverse these deleterious effects of injury. Third, he must understand by whom and when these specific therapeutic measures may be carried out. For the doctor or first aid man at the disaster to do his job he *must* know what the doctor at the hospital will do next. For the doctor in the hospital to succeed he must know what the doctor or aidman ahead has done. Resuscitation or "revival of the patient" is a team job and each member of that team must have an overall view if he is to do his job well.

What are the deleterious effects of injury? Briefly, four major phenomena threaten life following wounding. The first and most important is that blood is lost and continues to be lost, not only to the exterior but into the damaged tissue

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at the wound or fracture. With blood loss there is progressive decrease in blood volume, fall in cardiac output, fall in blood pressure, decrease in renal blood flow, and decrease in oxygenation of tissue. Second, tissue is damaged. With tissue damage specific organs and systems are damaged, the media for bacterial growth are produced, and the latest laboratory work indicates that toxic products may be released from the damaged tissue and have a general systemic effect which in itself may cause death. Third, the defense against bacteria is broken, wounds become contaminated, and bacterial invasion of the tissues and of the blood stream may occur. Fourth, mechanical defects may develop such as blockage of the airway, hemothorax, pneumothorax, cardiac tamponade, or increase in intracranial pressure.

It must be understood that all of these four processes are progressive, synergistic, and will continue until measures are instituted to slow them down, first aid, and finally correct them, definitive surgery. As long as these processes are in motion the casualty continues to deteriorate. In general, the intensity of early therapy and the time lag before the processes are finally brought to a halt determine the outcome of each casualty.

RESUSCITATION

It is important to understand that "resuscitation" includes the whole process of slowing down and stopping the pathological processes set in motion by wounding; first by simple local means, second by plasma or blood replacement therapy, and finally by operative intervention at the hospital. In the complete sense first aid at the disaster and surgery in the hospital should be considered integral parts of resuscitation. The location in which resuscitation is carried out depends upon the extent of the disaster, the weather, the efficiency of supply, and the *ability and attitude* of the medical personnel involved. If the mortality is to be kept at a minimum, every effort must be made to make the initial phase of resuscitation prompt, intensive, exact, and thorough. One oversight or break in technique may well cost a life because of the long time lag involved in evacuation during a disaster.

Optimal resuscitation begins with the physician or aidman at the disaster who attempts to slow down or stop the basic pathological processes that have been set in motion by injury. This is done by initiating the aims of resuscitation which will be discussed in the following paragraphs.

The prevention of continued blood loss is achieved through pressure dressings, pressure points, tourniquets, and immobilization of the wounded part. The vast majority of bleeding wounds can be controlled by the application of a pressure dressing. In addition to the pressure dressing the patient may be instructed how to add additional pressure. In most instances bleeding can be controlled by such measures. When a pressure dressing has proven to be inadequate for control of hemorrhage, a tourniquet should be resorted to. (Note the word "resorted," for the necessity of a tourniquet should occur only infrequently.) Immobilization of any portion of the body which has been wounded is a sound principle to observe in order to decrease the chances of recurrent hemorrhage. The splinting of a fracture is of real assistance in preventing any further vascular damage near the fracture site and thereby preventing additional blood loss, both to the exterior and into the damaged muscle. Should an arm or leg be wounded and bleeding recur it is advisable to instruct the patient not to use that extremity until a location has been reached where complete resuscitation is possible.

The replacement of a deficit in blood volume is second only to the control of hemorrhage in saving life. With the new plasma expanders found to be effective in combating shock, the physician has a relatively harmless and inexpensive agent with which to resuscitate the casualty at an earlier time.

Early intravenous therapy is important for several reasons. The patient will be brought out of shock earlier and whatever deleterious effects shock has on the casualty will not operate as long. The condition of the seriously wounded patient is improved for his journey to the hospital. He is in a less critical condition, and his chances of surviving the evacuation are

better. Finally, it is important to recognize that certain type wounds will eventually be accompanied by clinical shock unless intravenous therapy is instituted early. Such injuries as traumatic amputations and large evulsing wounds will eventually require intravenous therapy. Early intravenous therapy in such patients may well prevent clinical shock. Thus, the casualty will benefit from intravenous therapy administered before and throughout the period of evacuation to the aid station or hospital.

Additional tissue damage can be prevented by the splinting of fractures and the immobilization of all wounded parts. The proper application of a splint is the single most important factor in preventing additional tissue damage. Inadequate splinting, rough evacuation, or inadequate instructions to the patient concerning the management of himself during the period of evacuation may result in additional tissue damage. The importance of prompt and adequate splinting cannot be over stressed. If a missile should be lodged in a leg and the casualty is allowed to walk, the metallic fragment may well produce additional tissue damage or hemorrhage. Every injured patient should be instructed not to move the injured part for fear of producing additional tissue damage. If the casualty is disoriented, measures should be taken to restrict movement of the wounded part. Should a leg have extensive muscle damage, a splint will do more good than harm.

The correction of defects in cardio-respiratory mechanism should be carried out. At the time the casualty is initially examined an effort should be made to determine whether the patient has signs of respiratory difficulty. If the patient has a sucking chest wound, the wound should be covered immediately with a vaseline dressing. The patient should be examined about the face and neck for wounds. A partial occlusion of the airway can be relieved by manipulating a shattered larynx or by positioning the head in a particular manner. Instructions to the patient stating how to hold his head or how to lie on the litter may be lifesaving during the period of evacuation. With bleeding around the nose and mouth, the patient should be instructed to lie in a position that will allow the blood to drain to the exterior and not pass into the throat causing aspiration and suffocation.

The physician should be able to relieve much of the pain felt by the casualties. Immobilization of the wound is one of the greatest factors in relieving or preventing pain. This may be accomplished by splinting in the case of suspected or known fractures and by instructions to the patient how to prevent movement of a wounded part during evacuation. Reassurance and explanation to the patient is often beneficial. Many casualties expect pain or in the excitement of a disaster magnify in their own minds the amount of pain they are experiencing. A simple explanation that their wounds do not threaten life or limb and that a small amount of pain can and should be tolerated will quite often give gratifying relief to the casualty.

Morphine may be used to relieve pain. However, a very small per cent of casualties actually have pain severe enough to warrant morphine therapy. Morphine may be deleterious in certain types of casualties. Morphine may cause nausea and vomiting and may increase the hazard of anesthesia. In view of these facts, serious consideration should be made before morphine is administered.

Transportation of the casualty and protection from the elements are important subjects. It is important for all personnel dealing with the injured to realize that exposure to the elements is harmful to the casualty. It is important that an adequate number of blankets (four or five) be available when a casualty is to be transported outside of a heated vehicle during the winter months. It is also important for all members of the medical team to know that the movement of a casualty can be deleterious to a casualty, particularly while a patient is in shock. We should abandon the motto that "the quickest evacuation is the best evacuation" and substitute "the smoothest evacuation is the best evacuation." This is particularly true after bleeding is controlled, intravenous therapy has been started, and the need for speed is not urgent. It was observed at the Mobile

Army Surgical Hospital in Korea that the movement of casualties from the preoperative ward to the x-ray table, not 50 feet away, would cause some patients to go back into severe shock. In two cases that I know of this move resulted in death. The entire concept of preparing a patient for evacuation and then carrying out a smooth evacuation must be well understood by all members of the team.

Within the aid station or emergency room more aggressive resuscitation by the physician should be carried out. An intravenous cutdown may be instituted to insured uninterrupted intravenous therapy for a critically injured casualty. Thoracentesis may be carried out to relieve a mediastinal shift. Closure of sucking chest wounds, tracheotomy, and blood volume replacement therapy may be carried out at this level.

The physical setup of an aid station or emergency room will vary greatly, depending upon the situation, the time available for construction, the rate of casualty flow, and weather conditions. In general, the site selected for the aid station or expanded emergency room should give the surgeon adequate room to move freely and quickly from one patient to another. When the casualty load is heavy, it is advantageous to have the aid station divided into areas: A receiving area for sorting, a shock area, a splinting area, and an area for patients awaiting evacuation. When the situation will permit, a house, tent, or school will suffice. On occasion, an open field will afford a satisfactory location.

SUMMARY

An important factor in the care of mass casualties is an awareness by the physician that patient responsibility is broad and a key factor in a disaster. The physician is responsible for all factors which alter the eventual outcome of a casualty.

The physician, in accepting his responsibility, must understand the effects of injury. He must know how to reverse the deleterious effects of injury through specific therapy. He must understand that the complete process of reversing these effects is a team job. In addition to knowing his job he must understand the jobs of the other members of that team, if the team is to function at maximum efficiency and mortality is to be kept to a minimum.

Hip Conditions: Early May Be Too Late**

ALLEN F. VOSHELL, M.D.*

As I have joined the groups of older men in the specialty of Orthopaedic Surgery, known as the Fuddy Duddies, I have appreciated more than ever the importance and real value of some of the simple, yet genuinely fundamental features which are the clues to early diagnosis in many conditions that will become serious problems if treatment is delayed. I shall not bore you by presenting a superfluity of case types or a quantity of slides; I have selected only four conditions for presentation principally because they are more often overlooked in their crucial, earliest stages, than many of the other hip conditions I could discuss. I also selected the conditions because they occur in children who could be severely handicapped forever if treatment is not initiated early. Hence, the latter part of the title, "Early May Be Too Late," meaning that one cannot make the diagnosis too early to avoid a disabling outcome.

Before presenting the specific clinical entities, I should like to give you a few basic points which, *if applied*, should give important clues, if not almost make the diagnosis for you. May I call them my Ten Commandments?

TEN COMMANDMENTS:

1. History: a good, complete, dependable (accurate) history is always the basis of every examination and frequently gives the clue to the probable type of condition. It is *most important.*

2. Law of averages: common conditions fall into age groups as shown by the law of averages; use of this law will give a preliminary suggestive idea as to likely type of condition present.

3. The earliest symptom, *pain in the inner side of the knee,* generally precedes any tenderness localized in the hip; this very important symptom is known as "referred pain."

Hence, when you do not find *signs* in the area of complaint, sufficient to explain the complaint, "always look upstairs"; that is, follow courses of the sensory nerves toward their origins, checking each level.

4. Muscle spasm develops very early in joint conditions and remains throughout at least the acute stage; it usually leaves late. It will be the first to arrive and the last to leave.

5. A certain consistent deformity usually indicates the type and stage of hip involvement.

6. Limitation of motion, passive and active, in specific directions usually suggests the type of condition present, consistent with age of patient, and even the stage or severity.

7. Increase the flexion deformity: if the hip is movable in all directions with minimal or no tenderness, the trouble is not likely to be in the hip.

8. Measure the legs for length and size. To obtain accurate comparative leg lengths, you must place the legs in the same relative positions to the pelvis.

9. An adducted leg looks short but measures long.

An abducted leg looks long, but measures short.

10. Use the things God gave you (eyes, brains, hands, etc.) to analyze the facts obtained by the history and your examination, before getting auxiliary aids (x-rays, laboratory tests, etc.) to help prove your diagnosis.

In the early stages x-ray films may not be positive and, hence, may confuse and not decide. We do not make diagnoses by x-rays, but rather on the history and clinical findings plus x-rays.

CONGENITAL DISLOCATION OF THE HIP: UNILATERAL AND BILATERAL.

As the title implies this condition is present at birth and may be diagnosed in the first few weeks of life, if a careful examination and analysis of the findings are done; a thoughtful and observant physician should suspect its presence and not have the mother be the first to note the deformity. I can assure you, however, that it is not easy to establish this diagnosis in early infancy without x-rays and

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even then it may be uncertain as the full deformity may not be present this early, yet there *are* features that should make one more than suspicious and, hence, willing to initiate the first stage of treatment and not wait for confirmation by every sign. Too frequently parents are told to wait until the child walks or that it will outgrow it, etc., whereas too often the reverse is true and valuable time is lost that can probably not be recovered.

The symptoms of most importance, usually vounteered by the parent, are that the baby holds its leg externally rotated more than the other, and in more extension, and does not kick this leg freely or fully.

The signs noted are: the posture just mentioned, some apparent shortening, extra gluteal or upper-posterior thigh crease, slight trochanteric area prominence, limited rotation (usually inward) and abduction, a click felt (Otoleni's sign) on manipulating the hip, probable telescoping or instability sensation on longitudinal pull-push maneuver (equivalent to positive Trendelenberg sign).

Sometimes one can feel the head of the femur slip into and out of the acetabulum, which is a most satisfying sensation; usually at this time much tension of the adductor muscles develops causing tenderness with the usual patient reaction but this latter may be avoided with patience and gentle handling. Bilateral dislocations will be more difficult as one does not have a normal side for comparison; the extra gluteal creases and limitation of motion with tenderness will be the most useful signs. X-ray films, anteroposterior with feet pointing upright, and lateral views (other angle views may be necessary) will generally corroborate suspicion.

(Comment: do not make more films than necessary due to effects upon important reproductive organs, as well as influences on future generation). When suspicious, seek specialized assistance as it is very important that the diagnosis be made as early as possible and treatment initiated promptly. To await the stage of walking, when anyone can make the diagnosis, is unforgivable, and as age proceeds, success of treatment decreases rapidly. At times a widened hip joint space will suggest a later dislocation, hence, a guarded prognosis, and periodic examinations as child develops are indicated.

My reason for presenting the next three conditions is due to the fact that they are so often overlooked or unappreciated in their early stages; I beg you to please remember the existence of these entities and do not delay in concluding diagnostic and treatment procedures. Delay can be disastrous.

Legg-Calvé—Perthés Disease

In 1909, Dr. Legg of Boston and in 1910, Drs. Calvé and Perthé of France, without mutual knowledge of each other, described a condition involving the hip joint in children between the ages of six and ten, average of eight; it is otherwise known as osteochondritis deformans juvenalis.

The pathology is that of a slow disintegration of the ossification center of the head of the femur passing through a hardening or sclerotic stage; recovery is present when the ossification center reforms and continues its normal growth. In most instances, fortunately, the cartilage covering the head is not involved, hence, hip motions are not much affected, though at times much damage to bone and cartilage occurs causing limited motion and shortening and permanent disability.

The clinical course of this condition is quite typical and should very rarely be missed. The history is usually that a boy between the ages of six to ten (it is rare in girls) starts limping due to complaint of aching pain in *inner side of the knee*, sometimes extending along the anterior-inner part of the thigh to the knee, rarely below this level or in the hip itself. After about a week or ten days of increasing ache, rest becomes essential, so the patient is put to bed for a period, during which the symptoms subside and activity is resumed. Repetition of the same sequence of events occurs again and again until pain and deformity become sufficiently severe to demand serious attention. The lack of much temperature rise misleads both parent and doctor, as well as the prompt improvement with rest. The condition simulates a mild tuberculous arthritis, but rarely do the features of this more

serious problem persist in Legg-Perthés in the same way or to the same degree as they would in tuberculosis; atrophy is usually slight or mild and rarely progressive in Legg-Perthés.

X-ray films usually clinch the diagnosis except where one is keen enough to suspect its presence so early that bone change has not occurred. A series of typical films should instil in your mind a healthy respect for this condition, particularly since the treatment course extends from one to several years before one may expect free activity.

This condition is a prime example of the *dictum* that one does not make a diagnosis on x-rays alone, but on the history and physical examination plus x-rays.

The treatment is essentially to eliminate weight bearing (after early traction) by means of bed rest, knee sling or ischial bearing brace for one to two years depending upon the recovery of the head of the femur. Operative procedures are rarely advisable.

SLIPPED FEMORAL CAPITAL EPIPHYSIS:

Another hip condition of interest and importance is that known as Slipped Femoral Capital Epiphysis or Slipped Hip Epiphysis.

I am sure I do not have to remind you that during the first twenty years of life, all long bones have epiphyses from which these bones obtain their lengths; these areas are susceptible to infection, injury, metabolic variations and deficiencies of development. I have selected the gradual weakening of the junction area between the epiphysis and the shaft, known as the epiphyseal plate, as an example of the need for acuity of perception and a realization of its possible existence in its earliest stage, even before slipping *has occurred*; this is possible.

This hip condition occurs in boys, rarely in girls and more rarely in Negroes, aged *eleven* to *fourteen* with *average of twelve*. These boys are usually the type I call "endocrine," meaning by that a boy who is overweight and of the feminine type of build with delay in his sexual development. The usual history is that of recurring attacks of aching tenderness in the *inner side of the knee* possibly extending upward along the anterior-inner part of thigh, rarely in the hip area, until later; when the hip is described as the site of tenderness much slipping of the epiphysis has probably occurred. To prevent further, or complete, displacement and the serious operative procedure incident to this, early treatment and prevention is most important.

The customary deformity is adduction and mild flexion-external rotation limp proportionate to the stage of the condition. Motion of the hip is limited in abduction and internal rotation with adductor muscle spasm and contraction.

Sometimes it is advisable to insert one or more pins into the hip to make sure that slipping does not proceed. Basically, elimination of weight bearing is essential with preliminary traction to overcome spasm of muscles and hoping to correct some deformity. Time heals and stabilizes the hip without appreciable motion loss if treatment is started early and persistently followed, associated with loss of excess weight and adjustment of hormone balance. It may take one, two, or even three years before full activity and weight bearing can be allowed; the longer the duration of the condition, the poorer the prognosis and the more prolonged is the treatment course; no reconstruction operation is ideal or certain of success, even though reports indicate a fairly high percentage of good results.

Nothing substitutes for early recognition due to the realization that this entity can be present, with a start on treatment regime promptly. Careful consideration and evaluation should be given before deciding to operate.

SEPTIC ARTHRITIS OF THE HIP.

Contrary to the present-day, customary attitude that septic conditions no longer are present, or that antibiotics will cure without residual complication, I would like to strongly emphasize to you that Utopia has not as yet arrived. In the past six months we have seen more septic hips, rather than fewer, in spite of the promiscuous use of penicillin, etc. Also, I may state, that valuable time has been lost in most of the cases due to undue reliance on the antibiotics. Hence, I wish to briefly comment on this type of hip

condition with a full realization that any and all other joints are susceptible to similar infections and permanent damage.

A septic hip is not more common in any one age group than another and, hence, is not as delineated as the previous conditions discussed; it may occur in anyone, but is more common in children. Right now I have a case in an eight week old baby; also one in the first few weeks of life which, sad to relate, occurred due to too energetic venapuncture of the femoral vein. In like manner we have a forearm amputation in a two year old due to a venapuncture complication. The severe, permanent damage to the hip joint occasioned by the destructive infection, more than emphasizes the need for alertness and speed on the part of all concerned especially the doctor who first sees the child. Prompt and energetic treatment offers the only hope of saving the hip, and sometimes even the child.

Most times the onset of the hip involvement follows an infection elsewhere such as a cold, sore throat, upper respiratory infection, or even a simple boil. A fall or forceful twist of the hip may be the only clue in the history, suggesting a traumatic synovitis which fails to clear up in a few days. At any rate the child reacts with a scream everytime the hip is moved and probably has a fairly high temperature, and sometimes, but not always, there will be local heat palpable at the hip.

On examination the hip will usually be in flexion, abduction, and external rotation, being held so by spasm of all the hip controlling muscles, and, hence, relatively immobile with intense pain developing on any movement of the hip or the patient, even just shaking the bed. The child will be genuinely and generally real sick after a day or so due to absorption from a hip joint tensely swollen by purulent exudate.

Speed is the watchword at this time, if not sooner, and aspiration of the hip followed by incision and drainage is paramount; I would even condone an exploration without finding pus rather than delay until destruction of the bone is visible in x-rays. Needless to say x-ray films will usually be considered negative in the earliest stage though the swollen capsule may be visualized. If the infecting agent and the secondary exudate are not eliminated early enough, nothing will save the hip from destruction and later dislocation. Traction to relieve bone contacts may be used, and to prevent dislocation, but it fortunately will not be tolerated at the time of most acuteness. Broad spectrum antibiotics should be used until a more specific one can be determined.

What to do with these hips after the acute stage has passed and bone destruction has occurred, is a most difficult question and cannot be answered in a few words; the damage has been done and it is probably permanent, hence the care from now on is almost a lifetime responsibility.

What's NEW

Physiologic Treatment of Constipation

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JOE H. HARDIN, M.D., ASSOC. A.C.P.**

Each patient seems to have a different conception of what constitutes normal bowel habits. Constipation, one of the most common physical complaints, does not mean the same thing to everyone. To some, it is the passage of a large, formed but dry, hard stool even though daily and adequate in volume. To others, it is lack of defecation for one or more days. To still others, it is the passage of a small, marble-like or ribbon stool, or the sense of ineffectual evacuation regardless of the size and character of the stool.

The organic and functional causes of constipation are multiple. The organic lesions usually are treated surgically and will not be discussed in this report. The functional factors work singly or in combination. We have found the following influences to play a major role in producing constipation: (1) excessive, long-continued, or indiscriminate use of cathartics; (2) nervous tension with anxiety and fatigue; (3) failure to heed the urge to go to stool; (4) improper diet; (5) failure to drink enough fluids each day; and (6) lack of exercise.

Irritant cathartics of various types have proved unsatisfactory and even harmful since they disturb the normal gastrointestinal gradient by which food passes in an orderly manner from stomach to rectum. In addition, they interfere to a serious degree with normal physiologic enzymatic activity and normal absorption. The anthroquinone group increases motor activity of only the large intestine. Irritant oils often retard gastric emptying but selectively stimulate motor activity of the small intestine. Phenolphthalein exerts its greatest effect on the colon, less on the small bowel. Lubricants such as mineral oil and vegetable oils are useful in the prevention of straining at stool, but they also have undesirable features (principally leakage and inhibition of absorption of vitamins).

Objection to the undesirable action and effects of the older cathartics has stimulated a search for newer and more effective agents. These should enhance rather than interfere with physiologic processes. Interest currently is focused on bulk producers and wetting agents or a combination of these. We wish to report our observations with Benulone,* a new preparation combining a modified methylcellulose, a wetting agent, and an antispasmodic.

The antispasmodic, Bentyl** hydrochloride, acts systemically through the autonomic nervous system and directly upon the intestinal musculature. It decreases intestinal spasm and restores normal smooth peristaltic movement. (1-4) A new modified sodium carboxymethylcellulose of extra high viscosity, Modicel,*** which has been fragmented by a special process to increase its molarity, regulates the osmotic balance of fecal water content. The osmotic index is increased three to four times by this modification. This aids in re-establishing osmotic balance in the colon, thus regulating fecal consistency and controlling the

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*Benulone is the trademark of The Wm. S. Merrell Company, Cincinnati 15, Ohio.
**Bentyl is the trademark of The Wm. S. Merrell Company for its brand of dicyclomine.
***Modicel is the trademark of The Wm. S. Merrell Company for its brand of modified sodium carboxymethylcellulose.

water content. Sodium lauryl sulfate is used as a wetting agent to change the surface tension of the fecal mass so that the combined action promotes penetration, softening, and lubrication.

We have used Benulone in treating 156 consecutive patients whose main complaint was constipation although we have included several who complained of diarrhea. Each patient had used many other preparations, such as any laxative recommended by a druggist, friend, radio or television program; bulk preparations of hydrophilic gums; colonic irrigations; and frequent enemas. The diagnoses are listed in Chart I. All patients were given a low-residue diet, adequate in protein and vitamins. They were instructed to avoid all cathartics and to take one tablespoonful of Benulone two or three times a day. A saline enema could be taken if the bowels failed to move for three days. Some patients also were given a combination of an antispasmodic and a sedative, although Benulone itself contains Bentyl hydrochloride. The patients continued to make the same efforts to develop regular bowel habits as they previously had tried unsuccessfully. The amount of Benulone was reduced gradually after patients had begun to experience regular bowel habits, although many continued taking two tablespoonsful each day.

Chart I

DIAGNOSIS	RESULTS Good	Fair	Poor
Cathartic habit	19	2	3
Chronic ulcerative colitis	1		1
Irritable colon (spastic)	37	6	2
Suspected obstruction	1		
Ileitis	1		
Hypothyroidism		1	
Duodenal ulcer	13		4
Psychoneurosis	11	8	7
Subtotal gastrectomy	1		
Cirrhosis	1		
Allergy	1		
Diverticulosis	5		
Irradiation proctitis	1		
Leukemia		1	
Parkinsonism	1		
Arthritis			1
Arteriosclerosis	5	4	3
Carcinoma	1		
Cholelithiasis		1	

The results were recorded as good, fair and poor. A good response meant that the patient had daily movements of a soft, formed stool followed by a sense of effectual evacuation. Results were classified as fair if the patient had only two or three soft stools per week, requiring an occasional enema but obtaining a lessening of their fullness, bloating and abdominal discomfort. Poor results were recorded when patients were unable to take Benulone or failed to develop any regularity of bowel habits.

Follow-up observations were obtained in 117 of the 156 patients. The follow-up group consisted of 80 women and 37 men ranging in age from 16 years to 91 years (Chart II). Neither sex nor age seemed to affect the results (Chart III). Analysis of the results showed that 84 patients reported good results; 18, fair; and 15, poor (Chart IV). Thus, 72 per cent had good results; 15 per cent, fair; or a total of 87 per cent had satisfactory results.

Chart II

SEX	RESULTS Good	Fair	Poor
Male	27	6	4
Female	57	12	11

Chart III

AGE (years)	RESULTS Good	Fair	Poor
-20	1		1
20-29	5	1	3
30-39	11	4	0
40-49	19	4	5
50-59	20	3	1
60-69	16	1	3
70-79	11	4	1
80+	1	1	1

Chart IV

RESULTS Good	Fair	Poor
84	18	15

Minimal side effects occurred in fourteen patients. One patient experienced an erythematous rash which seemed to be due to Bentyl. The rash was characterized by mild itching, but the patient preferred to put up with the itching because

of the excellent effect of the medication upon the constipation. Five patients complained of the unpleasant taste of Benulone but only one refused to continue to take it for this reason. Two patients complained of nausea. One patient had nausea and vomiting and could not continue taking Benulone. Only one patient experienced dryness of the mouth; she also had generalized itching and some belching. Three had gaseous distention of the abdomen which disappeared after several days. One patient complained that Benulone caused too large a stool. No other unpleasant effects were reported nor was there any instance of impaction.

Less than half the patients with psychoneurosis and generalized arteriosclerosis had good results (Chart I). Cooperation was lacking in these patients. Those with active duodenal ulcers responded more favorably; results were good in 13 and poor in 4. All tolerated Benulone without aggravation of symptoms of ulcer. All five cases of diverticulosis responded satisfactorily without any of the undesired effects bulk often produces in colonic diverticula.

Of additional interest is the group of eleven patients with diarrhea. Diarrhea in two patients with chronic ulcerative colitis was controlled very well in one and uncontrolled in the other. One case of regional enteritis was relieved very promptly of diarrhea. Three of four patients with functional diarrhea had good results and the other fair. The diarrhea of diverticulitis responded very well in two patients. Of special interest in this group is the very good result in one patient with irradiation proctitis which had produced a stubborn diarrhea. She had had deep x-ray therapy for treatment of a carcinoma of the cervix seven years before, with subsequent diarrhea of several years' duration which had defied previous efforts at control. The stools became formed though soft after a week on Benulone therapy.

COMMENT

The majority of patients did not begin to have noticeable results from Benulone until the third to fifth day. In some, enemas were necessary for several weeks, mainly because patients had the fixed conception of disastrous results if they did not have a more complete movement. We have found similar ideas to be significant in the formation of the cathartic habit. At the onset when the program is outlined to the patients we have found it necessary to take sufficient time to explain and to reassure them that a daily large stool is not necessary for their health. However, we do not attribute the beneficial results to this discussion. Many of these patients had been under our care before Benulone treatment was started. They had previously been given the "benefit" of lengthy explanations of the physiology of the intestinal tract and had been on regimens which had not proved fully effective. True, patients coming to see a physician for the first time have a certain confidence which helps psychologically in getting their close cooperation and which may be suspected of playing a major part in treatment. Yet, the results in patients treated on prior occasions was as good as in those seen for the first time. We believe the personal element was equally present in the two groups. The results have been maintained over the period of the last twelve months, adding to their validity.

Experience with patients in the older age groups, 60 years and above, convinces us that long-standing constipation in this latter group is not an obstacle to restoration of normal bowel habits. Thirty-nine of the patients ranged in age from 60 years to 91 years. Twenty-eight of these experienced good results (Chart III); six admitted fair results; and five failed to benefit. Only six of these had associated symptoms such as slight nausea, gas, belching, itching and transient epigastric burning. One patient could not continue taking Benulone because of nausea and vomiting.

SUMMARY

Benulone, a new combination of an antispasmodic, a modified carboxymethylcellulose, and a wetting agent has been given to 156 patients complaining of bowel dysfunction (145 with constipation and 11 with diarrhea). Eighty-four, or 72 per cent, had good results characterized

by daily bowel movements of soft, formed stools with the feeling of complete evacuation; eighteen, or 15 per cent, had fair results; and in only fifteen, or 13 per cent, was the medication ineffective.

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A TEACHING SEMINAR
FROM THE
UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

Anemic Heart Disease

Tom D. Norman, M.D.*

Alterations of the cardiovascular system by anemia are seldom considered in teaching conferences or in medical writing, perhaps due to the insidious and nondramatic development of the disease. Unfortunately, this neglect may carry over into the diagnosis and management of patients. Although rarely a fatal disease in itself, anemic heart disease may be of more significance in medicine today than is generally appreciated. Especially when combined with other cardiovascular disease, the anemic state may cause congestive heart failure, and its recognition and proper treatment depend upon certain factors that make it different from most other diseases which cause heart failure.

Anemic heart disease as it is generally recognized and as it will be discussed here is due to moderate or severe chronic decrease in hemoglobin. Although in the past pernicious anemia was the leading cause of this disability, at this time a variety of anemias which develop slowly and are persistent produce a significant effect upon the cardiovascular system. If any one type of anemia stands out now in this role it is that due to sickle cell disease.

PHYSIOLOGIC ALTERATIONS IN ANEMIA

An increase in cardiac output is characteristic of chronic anemia (1, 2, 3), the level of hemoglobin at which this increase occurs being about 7 Gm. per 100 ml. of blood. Above this critical level of hemoglobin there is an increase in oxygen utilization to compensate for the decrease in arterial oxygen content. However, when cardiac output is increased maximally with severe anemia, the per cent utilization of arterial oxygen decreases to normal or below (3).

A reduction in blood volume has been demonstrated in anemic patients (1), and in dogs (3) this reduction was shown to be greatest at the time of last venesection in chronic bleeding experiments, and before the development of maximum cardiac output. These same investigators found a rise in right atrial pressure; Sharpey-Schafer (1) believed this pressure increase was responsible for the increase in cardiac output (Starling's Law of the Heart). However, in Hatcher's study (3) the initial rise in right atrial pressure occurred several days before the increase in output. This was interpreted as evidence against increased atrial pressure being the cause of increased cardiac output.

It is generally concluded that a lowered blood pressure is present in individuals with anemia (2). In a study of patients with and without congestive heart failure blood pressures, especially the diastolic pressures, were generally but variably lowered (1). No consistent change of mean pressure was noted (3) in a study of chronic anemia in dogs. An increase in pulse pressure is also a characteristic of the anemic state.

An increase in heart rate is consistently noted both in human beings (1, 2) and in dogs (3) with chronic anemia. The stroke output in dogs was noted by Hatcher et al (3) to be increased at the time of maximum cardiac output.

Peripheral blood flow is increased in individuals with chronic anemia as determined by studies of flow in the forearm

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Supported by a PHS research grant, H-4116, National Heart Institute, Public Health Service.

of patients (4) and in the calf of dogs (3). However, there is considerable variation in regional blood flow (3, 4, 5). Hatcher and associates (3) noted that the total peripheral resistance in chronically anemic dogs was increased during the period of bleeding and was maximal when cardiac output was lowest; with development of an increased output the total peripheral resistance was decreased.

Since there is no correlation of the onset of increased cardiac output with the beginning of increased right atrial pressure, and no direct relationship between tissue anoxia and the period of maximum increase in cardiac output (3), Hatcher has proposed that the increased cardiac output is due to a slowly elaborated humoral factor. This is supported by work which demonstrated that blood from anemic dogs at the time of increased cardiac output, infused into nonanemic dogs, produced significant cardiovascular changes, including an increase in cardiac output under certain experimental conditions (6).

Blumgart and Altschule (7), describing the work of several investigators, concluded that increases in rate and depth of respiration cause an increase of respiratory minute volume in anemic patients. The vital capacity is often lowered in these individuals, changes in subdivisions of the vital capacity occurring that indicate a loss of elasticity and expandibility. These authors also reported that in anemia there was a loss of much of the buffering action of hemoglobin in red blood cells and a flattening of the carbon dioxide dissociation curve.

ANATOMIC CHARACTERISTICS OF CHRONIC ANEMIA.

Cardiac enlargement has been noted repeatedly in patients with chronic anemia (2, 7). The question which has perplexed some investigators is whether this enlargement represented true hypertrophy in the face of what appeared to be an anoxia of the heart. Radiologic or other clinical studies of living patients do not differentiate with certainty between cardiac dilatation and hypertrophy, and correlative studies with autopsy material from patients with chronic anemia are frequently complicated by associated diseases which may be responsible for any hypertrophy that is demonstrated. However, studies by Paplanus and associates on bleeding-anemia in dogs (8) and Norman and McBroom on rats made anemic by phenylhydrazine treatment (9) have demonstrated that hypertrophy does occur in chronically anemic animals under carefully controlled conditions. This cannot be taken as evidence of hypertrophy in anoxic myocardium, however, since physiologic studies previously described make it doubtful if myocardial anoxia actually occurs with chronic anemia. This is supported also by more recent studies of myocardial blood flow (10).

In treated patients, regression of anemic heart hypertrophy has been noted as determined by serial radiographic studies (11). That regression may occur is supported by the previously mentioned investigation of hypertrophy in anemic rats (9) in which heart size was decreasing in animals 4 weeks after the end of treatment which produced the anemia.

Fatty change in the myocardium of patients with chronic anemia was frequently described in the older literature (7, 11). In the experimental studies of Paplanus (8) and associates this was not described, nor was it demonstrated by Norman and McBroom (9) in studies of anemic rats, either grossly or microscopically after staining with Sudan IV. In the experience of the author, fatty change in the heart at autopsy is observed very infrequently and appears to be uncommon even in patients with chronic anemia. There is need of additional study of this feature in hearts of patients who have died from various cardiac and noncardiac diseases.

Other than the hypertrophy, and a general pallor of the myocardium which is characteristic of anemic organs in general, the myocardium of patients with uncomplicated chronic anemia is not different anatomically from that of nonanemic individuals. At the present time, electron microscopy studies of hearts of anemic rats are being made by the author. This may answer the question of whether myocardial damage has a role in the production of anemic myocardial hypertrophy and eventual failure.

Other anatomic changes in chronic anemia pertain to the blood-forming organs proper, and of course vary with the type of anemia present.

Association of Chronic Anemia With Other Cardiovascular Diseases.

As mentioned earlier, patients who are anemic may have other types of heart disease. Assessment of the significance of anemia in the cardiovascular abnormalities of these persons is difficult in clinical or even autopsy studies. It seems logical, however, that the addition of an anemic factor to other heart disease would accentuate the cardiac difficulties.

This problem was studied by Norman and McBroom (12) in rats with a combination of hypertension and moderately severe anemia. There was a definite increase in the amount of myocardial hypertrophy produced in those animals with both hypertension and anemia as compared to those with anemia or hypertension alone. The hypertrophy produced by combining the two methods was somewhat less than an additive effect.

West and his associates (13) noted that hypertension alone did not alter the cardiac oxygen consumption or coronary blood flow on a unit weight basis in dogs. When a moderate chronic anemia was also produced in the hypertensive dogs, both coronary blood flow and myocardial oxygen consumption were increased.

The experimental work described does support the idea that anemia as an added factor may increase significantly cardiovascular disease of other causes. Patients in which this combination may not have been properly appreciated in the past are those with heart disease due to hypertension and with associated renal vascular disease. As these individuals develop renal failure, especially in the terminal stages, a secondary anemia may contribute appreciably to heart failure which has been recognized earlier as that due to hypertension alone. Studies of the clinical significance of this and other heart diseases with anemia are needed.

Clinical Diagnosis

Of the many descriptions of the symptoms and signs of cardiovascular disease in patients with chronic anemia, the most comprehensive and useful are those of Hunter (11), Blumgart and Altschule (7), and Wintrobe (2). In the report by Hunter, personal observations of 34 patients with moderately severe anemia from various causes were presented and discussed.

Almost all of Hunter's patients noted general symptoms of anemia, including lassitude, pallor, and anorexia. Dyspnea was the most common symptom; it was present only with exertion, and orthopnea did not occur. There was no correlation of severity of dyspnea with other evidence of heart failure. Palpitation also was noted frequently. Anginal pain was present in one-fourth of the series of patients, most of whom had no hypertension or peripheral arteriosclerosis that would indicate coincidental coronary disease. Furthermore, since some were women of an age when arteriosclerosis is uncommon, there seems to be good evidence that anemia alone can cause anginal symptoms. All patients with this difficulty were relieved of it by treatment of their anemia. Intermittent claudication was present in 2 patients; although these men did have evidence of peripheral vascular disease, this symptom improved considerably after treatment of their anemia.

Physical signs in Hunter's patients (11) included the pallor usually associated with anemia, tachycardia, and a slight sacral of pedal edema in only a few patients. Blood pressure initially was within a normal range, but the mean was slightly lower than after treatment. It is of interest that 2 patients with normal initial pressures had a significant elevation of pressure after treatment. This masking of hypertension must be considered when the effects of anemia are being considered; it may be especially confusing in trying to determine the responsibility of anemia for cardiac hypertrophy in human beings.

In one-half of the patients studied by Hunter (11) there was a change in heart sounds, consisting of a prolongation of the mitral first sound and, less frequently, a third heart sound at the apex. Cardiac murmurs were heard in all but 4 patients. These were systolic except in 2 patients and could not be correlated with severity of anemia or enlargement of the heart.

Electrocardiography offers little diagnostic aid in anemic cardiovascular disease. Of the patients referred to above (11), 5 had flattening of T waves in 1 or more leads and in only 2 of these were the changes reversible; 2 other individuals were noted to have grossly abnormal T wave changes which were not reversible. Possibly those patients with irreversible electrocardiographic changes had undetected heart disease of another type. In 2 patients who had signs of heart failure, there was an inversion of the T wave in CR1 which was interpreted as evidence of right heart failure.

Cardiac enlargement may be detected by radiologic study and by auscultation and percussion of the heart. It should be added that neither radiologic nor clinical evidence of enlargement necessarily indicates the degree of hypertrophy. In Hunter's study (11), teleradiograms were taken at the beginning of treatment and at regular intervals thereafter. Twelve of 34 patients examined had evidence of enlargement and 6 others were considered to be possibly enlarged. Two of the latter group showed regression of heart size as the anemia improved and for this reason were considered in retrospect as enlarged. Of the patients with unquestionable radiologic evidence of enlargement, only 2 failed to regress after treatment; 1 of these patients refused to continue treatment while still anemic and the other had a history of rheumatic disease. When enlargement was demonstrated it was generalized.

The usual clinical signs of heart failure, including dyspnea, dependent edema, cardiac and liver enlargement, elevated venous pressure, and pulmonary congestion, appear in various combinations if the heart involvement is severe enough to produce failure. Hunter (11) found evidence of heart failure in only 5 of his patients and stated that neither dyspnea nor edema, without other signs, indicated heart failure. Of the 21 patients studied by Sharpey-Schafer (1) 10 had evidence of congestive heart failure. He noted an inverse correlation between venous pressure and hemoglobin concentration.

TREATMENT

The therapy of anemic heart disease has been considered even less than other aspects of this disease. Obviously the most important immediate consideration is correction of the anemia. Blood transfusions may be dangerous if given too fast or in excessive volume; thus blood should be given in relatively small amounts at a slow rate and with careful observation of the patient (5). Because the heart under such conditions is working at or near maximum, there is danger of sudden acute failure of the compensated heart or the exacerbation of failure that may already be present.

Transfusion of packed red blood cells offers a less dangerous means for correcting anemia when there is any possibility that the heart is significantly affected. Dalton and Hardy reported recently (14) that dogs with impaired cardiac reserve tolerate packed red blood cells much better than whole blood.

Little information is available concerning the effect of digitalis and other standard therapeutic procedures for the treatment of anemic heart disease. In many situations patients who are refractory to these usual methods for treatment of congestive heart failure may be found to have anemic heart disease or other high output types of cardiac disease with failure (7, 15). It is generally agreed that the treatment of the anemia is the most important part of the treatment of anemic cardiac disease.

SUMMARY

Chronic anemia of moderate severity is accompanied by an increase in oxygen utilization. With more severe reduction in hemoglobin concentration (below 7 Gm. per 100 ml. of blood) there is an increase in cardiac output with a lowered utilization of arterial oxygen. Although the increased output is preceded by an increase in right atrial pressure, it appears most likely that the cause of the increased cardiac output is the elaboration of a humoral factor. Clinical and autopsy evidence of heart enlargement, both dilatation and hypertrophy, has been supported by demonstration of anemic hypertrophy in dogs and rats. The additive effect of anemia on the cardiovascular system pre-

viously or concomitantly altered by other types of disease is an important consideration.

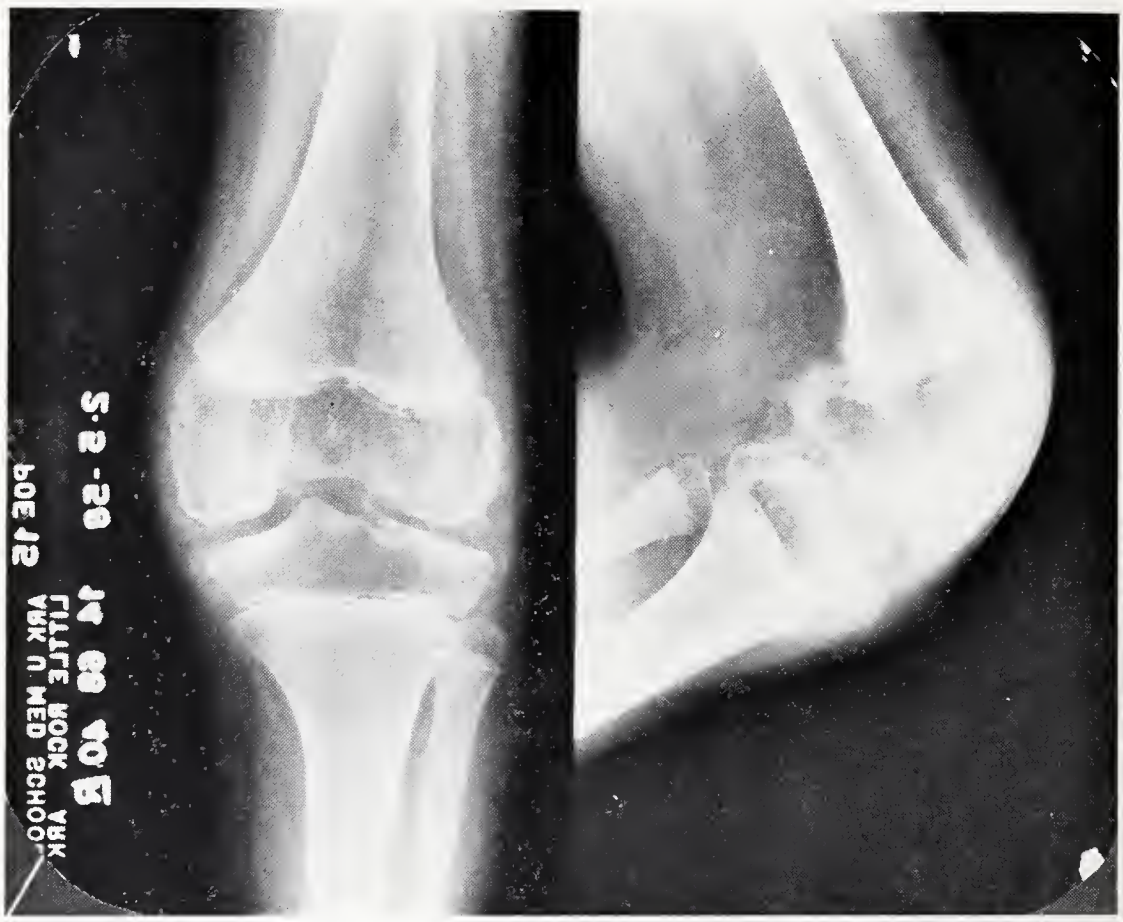
Patients with anemic cardiovascular disease usually have dyspnea and palpitation, occasionally note anginal pain and rarely manifest intermittent claudication if there is impairment of peripheral circulation due to other disease. Tachycardia is generally present, with slight hypotension, change in heart sounds, and heart murmurs. Radiologic evidence of cardiac enlargement may be of diagnostic value. Dependent edema, dyspnea, liver enlargement, and elevated venous pressure may indicate the presence of heart failure although the first two may be present without failure.

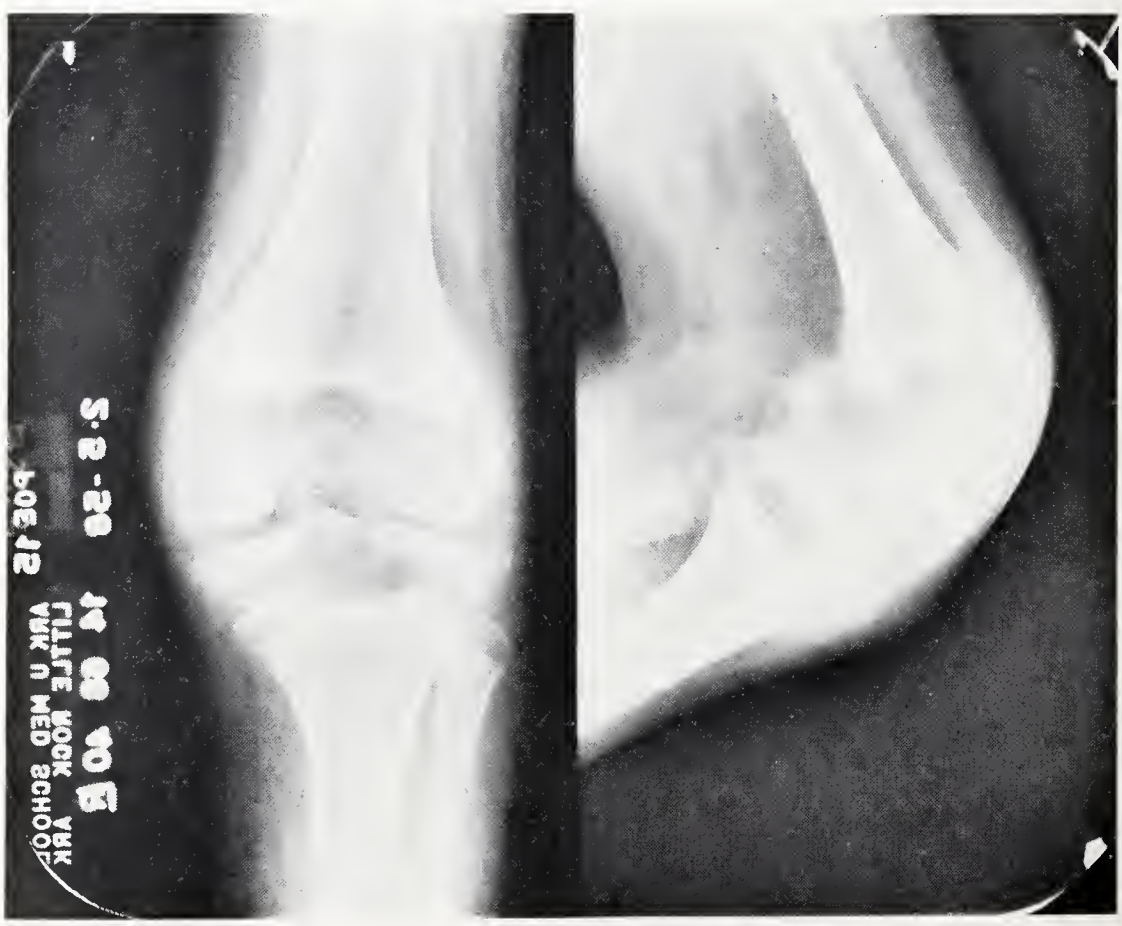
Correction of the anemia by small, slow whole blood transfusion, or preferably by administration of packed red blood cells, is the most important consideration in treatment of this condition.

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What Is Your Diagnosis?





FOR ANSWER SEE PAGE 423

Arkansas Public Health at a Glance

POLIO CASES - 1959



Much has been written and said concerning the outbreak of polio in Arkansas during 1959. The total of 305 cases is certainly one of the most appalling ever, particularly so considering the widespread availability of Salk vaccine. Only seven years since 1939 have shown a higher total than the figure for 1959, and they are all in the pre-Salk period.

Arkansas recorded a total of 230 cases of paralytic polio during 1959 and 75 nonparalytic cases. Of these 230 paralytic cases, 192, or 83.5%, of them had had less than three doses of Salk vaccine. 36, or 50.7%, of the nonparalytic cases had less than three doses. It is also interesting to note that only 12.5% of the total cases were paralytic with as many as three doses of the vaccine. In fact, only 6.6% of the total cases with three or more doses resulted in any significant or severe crippling or death.

While there were several cases in the older ages of our population, it is still very apparent that polio is primarily a disease of childhood. Of the total 305 cases, 224, or 73.4%, were in children under the age of ten. 189 cases were male and 116 were female. 195 were white, and 110 were nonwhite.

The following table shows a breakdown according to the number of doses of Salk vaccine that had been received by the cases reported in 1959.

No. of Doses	Paralytic Cases	Nonparalytic Cases	Total Cases
0	157	27	184
1	19	7	26
2	16	2	18
3	31	28	59
4	6	9	15
5	1	2	3

Editorial

'Little Dishonesties' in Health Insurance Add Up To Trouble

JOHN L. FLETCHER*

A young couple sat at the child's bedside in a Little Rock hospital. The warmth was welcome because the temperature had dropped as the November day faded into night.

Their family doctor came in and checked his patient.

"Well, young man," said the physician, "I believe you're almost well. Let's see—this is Friday, isn't it? If you promise to be a good boy I'll let you go home tomorrow."

The parents exchanged glances. Then:

"Doctor," said the father, "may I see you out in the hall?"

It seemed that Dad and Mom had tickets for the morrow's football game. Couldn't Sonny remain in the hospital until Sunday? After all, they'd been planning this outing for a week. One more day wouldn't hurt anything, would it? Their insurance company would pay the bill.

Result: The doctor went along with this arrangement.

Another Little Rock physician sent an elderly invalid to a hospital for a few days so the man's daughter and son-in-law could make a week-end trip out of town. An insurance policy swung the deal.

Each of these decisions was attributed to pressure by patients who say: "If you don't, I'll go to someone who will." The blame, then, may be charged to the public — to the people who buy hospital insurance.

But you can't lodge a complaint against the public for this one: A Little Rock patient brought a hospital bill to his doctor and said: "I wish you'd look at the cost of the operating room." The physician, thinking it was a gross overcharge, went to see the hospital administrator.

"He told me to let it go," the doctor said. "He said the insurance company had already paid the bill."

Mark up one against the hospital.

So much for the public and the hospitals. As shown by these actual incidents, each group has contributed to the cost of insurance in Arkansas. Now, what about the physicians and surgeons?

An insurance policyholder was notified in routine fashion that $150 had been paid by the company to a certain doctor "for performing an appendectomy on you." To which the patient replied: "I'm glad you paid my doctor $150 but he didn't take out my appendix. He removed a wart from my neck."

Ordinarily, you might wonder whether such things could actually happen. But when you realize that these statements, plus many more like them, came from Dr. John W. Smith of Little Rock, president-elect of the Pulaski County Medical Society and a former treasurer (for five years) of the Arkansas Medical Society, you sit up and take notice.

All of these angles are said to influence the cost of health insurance in Arkansas. Now how about the insurance companies?

"We have seen policies that list a few operative procedures and then, in small letters, say 'All other cutting procedures $10,'" said Dr. Smith. "One of my patients had major surgery and all she was able to collect was that $10.

"The insurance companies — and they are not always the small ones — are certainly guilty of over-selling the patient on the insurance policy. Many of the agents

*Of the Arkansas Gazette Staff, Little Rock, Ark.

tell their buyers that the policies cover things which they do not cover; often the purchasers are not told about the waiting period—ranging from nine months to a year—that's required before the coverage becomes effective.

"Other agents very often tell a prospect that he need not worry about a waiting period, that they can have something done about it. Then, when the time comes, the patient is left holding the bag.

"Many times a company will delay and delay payment of a legitimate bill. Not infrequently a doctor is compelled to complete the same claim form three or four times before the patient is paid."

Dr. Smith's blunt statements were made, he said, because:

"Each time we misuse insurance in any way we are taking slow poison; we are forcing compulsory health insurance with governmental supervision of medical practice.

"The time has come when we must 'wise up'—the doctor, the patient and the hospital; and, finally, the insurance company must put its 'fine print' in understandable words so its policyholders will know what they are—and are not—entitled to."

He said that misuse of health insurance "reveals an alarming, general weakening of the fabric of the integrity of our people."

Dr. Smith conceded that, in many areas, doctors themselves were at fault.

"All too often," he said, "even before diagnostic procedure or hospitalization is determined, the patient is asked: 'Do you have health insurance?' This is bad psychology and bad education of the patient. We ourselves must guard against the temptation of the abuse of over-subscription, over-utilization and over-charging simply because a patient happens to have insurance coverage."

Speaking at an unreported group meeting during the 1959 Arkansas Medical Society convention, Dr. Smith called on all doctors to "keep our integrity untarnished" and refuse to take advantage of the insurance plan.

The National Health Insurance Council at New York heard about the Little Rock doctor's expressions. It is preparing to distribute 400,000 copies across the United States.

PROGRAM

EIGHTY-FOURTH ANNUAL SESSION
ARKANSAS MEDICAL SOCIETY
PINES HOTEL, PINE BLUFF
APRIL 17, 18, 19, 20, 1960

ANNOUNCEMENTS

REGISTRATION —

The registration desk will be located in the lobby of the Pines Hotel and will be open from 11:00 a.m. to 5:00 p.m. on Sunday, April 17th; from 9:00 a.m. to 5:00 p.m. Monday and Tuesday, and from 9:00 a.m. to noon on Wednesday.

Delegates are requested to register as early as possible, presenting credentials in proper form at the time of registration. Members and visitors are required to register, as admission to all sessions will be by badge. Bring your 1960 membership card to facilitate registration. Members of the American Medical Association from other states may register as guests.

SPECIAL TELEPHONE SERVICE will be maintained at the registration desk; phone number JEfferson 5-0105.

MEETINGS OF THE COUNCIL

The Council of the Arkansas Medical Society, including past presidents, will meet as follows:

Sunday afternoon, April 17th, 2:00 p.m., Terrace Room, Pines Hotel
Monday, April 18th, 12:00 noon, Terrace Room, Pines Hotel
Tuesday, April 19th, 12:00 noon, Terrace Room, Pines Hotel
Wednesday, April 20th, 9:00 a.m., Terrace Room, Pines Hotel

REFERENCE COMMITTEE HEARINGS

Reference Committees appointed by the Speaker of the House of Delegates will hold open hearings to discuss resolutions and committee reports referred to them as follows:

Committee Number 1—C. Randolph Ellis, Chairman — meeting from 2:00 —3:00 p.m. on Monday, April 18th, Colonial Room

Committee No. 2—Louis K. Hundley, Chairman—meeting from 10:30 a.m. —11:30 a.m. on Monday, April 18th, Colonial Room

OPEN HOUSE

The Jefferson County Medical Society invites the visiting doctors and their wives to an Open House at the home of Dr. and Mrs. J. Clyde Hart, Jr., 240 Linden Heights, on Sunday night, April 17th, 1960, from 8 until 10 o'clock.

SPECIALTY SECTION PARTIES

Parties in private homes will be given by local physicians from 5:30 to 6:30 Tuesday afternoon, April 19th. Doctors and their wives are invited to attend one of these specialty group parties:

E.E.N.T.	2001 Country Club Lane, Pine Bluff
OB-GYN.	1000 West 36th Street, Pine Bluff
Radiology	1411 Olive Street, Pine Bluff
Surgery	Meeting place to be announced
General Practice	Holiday Inn
Pediatrics	Meeting place to be announced
Urology	Meeting place to be announced
Internal Medicine	Pines Hotel

FLYING PHYSICIANS

Arkansas Flying Physicians will meet for luncheon in the Pines Hotel on Monday, April 18th, at 12:00 noon.

S.M.A. BREAKFAST

The Southern Medical Association will hold a breakfast in the Terrace Room of the Pines Hotel at 7:30 a.m. Tuesday, April 19th, to honor Dr. W. T. Lowe and to confer honorary membership on Mr. Paul Schaefer.

Officers, former officers and interested members of S.M.A. are invited to attend.

FIFTY-YEAR CLUB

A breakfast for members of the Fifty-Year Club of the Arkansas Medical Society will be held in the Pines Hotel at 7:30 a.m. on Tuesday, April 19th. Members are requested to contact Dr. J. H. McCurry, Fifty-Year Club Secretary, at the Pines Hotel before 7:00 p.m. on Monday.

Dr. McCurry has received the approval of the American Medical Association to organize a Fifty-Year Club of the national organization. Members desiring information should see Dr. McCurry.

PAST PRESIDENTS BREAKFAST

The past presidents will meet for breakfast at the home of the immediate past president of the Society, Dr. Louis K. Hundley, 1221 West 36th Street, at 7:30 a.m. on Wednesday, April 20th.

"A YEARLY P.E. FOR EVERY M.D."

The Arkansas Academy of General Practice, the Arkansas Heart Association, the Arkansas Tuberculosis Association and the Arkansas Trudeau Society will again co-sponsor "A Yearly P.E. for Every M.D." A physical examination—including chest X-ray and electrocardiogram—will be offered to every physician in rooms 236 and 238, Pines Hotel.

ELECTION TO FILL VACANCY ON THE ARKANSAS STATE MEDICAL BOARD

A vacancy occurs in the Fourth Congressional District, the counties of which are listed below. All members from these counties are eligible to attend the meeting and vote for nominees. Please meet in the Ballroom of the Pines Hotel immediately following the House of Delegates meeting on Sunday, April 17th. Counties of Fourth Congressional District — Ashley, Bradley, Calhoun, Clark, Columbia, Hempstead, Howard, Lafayette, Little River, Miller, Montgomery, Nevada, Ouachita, Pike, Polk, Sevier and Union.

PRESENT MEMBER: Dr. Garland D. Murphy, Jr., El Dorado, who is eligible for reappointment.

GOLF TOURNAMENT

The Annual Golf Tournament will be played at the Pine Bluff Country Club, 4600 Cherry—18 hole medal play. All greens 328 Tifton grass; pro shop, lounge, and kitchen will be open all three days. There will be two divisions—open and senior (over 50 years of age). Entrance fee: green fees only, caddies and electric carts will be available. Prizes: awarded to winners and runners-up in both divisions daily. Register: Dr. Clyde Hart, Jr., 1310 Cherry, Pine Bluff, or Gene Frase, club pro, Pine Bluff Country Club. P.B.C.C. Womens' Golf Association will assist in recording scores. Dr. Hart is chairman of the tournament.

Ladies: Golf privileges of the Pine Bluff Country Club will be available to the ladies all day on Sunday, and on Monday and Tuesday mornings. Green fee $2.00. Any questions about arrangements should be addressed

to Mrs. J. Clyde Hart, Jr., 240 Linden Heights, Pine Bluff, Arkansas. Pine Bluff Country Club will honor accredited membership cards from any other club for the use of all club facilities.

TURKEY SHOOT

A Turkey shoot will be held at 1:00 p.m. on Sunday, April 17th, at the Pine Bluff Gun Club Range, McGehee Park. This will be a free-for-all shooting match. Matches will be arranged for any type or caliber firearm you bring—or you can borrow a gun at the range. Register at the registration desk. Howard Stern is chairman of the event.

HOUSE OF DELEGATES

Sunday, April 17th, 1960, 4:30 p.m.
Ballroom, Pines Hotel

FIRST GENERAL SESSION

Monday, April 18th, 1960, 8:30 a.m.
Ballroom, Pines Hotel
James M. Kolb, President, Presiding

A.M.

8:30	Call to order Invocation: Dr. W. L. McCalgan, Minister, First Presbyterian Church, Pine Bluff President's Address — James M. Kolb, Clarksville
	Scientific Session Wright Hawkins, Fort Smith, Presiding
9:00- 9:30	"Tired Blood," Albert Hagedorn, Medical Section, Mayo Clinic, Rochester, Minnesota
9:30-10:00	"Systemic Treatment of Fungous Infections," Harvey Blank, Professor of Dermatology, University of Miami Medical School, Miami, Florida
10:00-10:30	Intermission
10:30-11:00	"Newer Concepts in Treatment of Arteriosclerotic Occlusive Disease," Denton A. Cooley, Department of Surgery, Baylor University College of Medicine, Houston, Texas
11:00-11:30	"Mitral Valvular Disease — The Question of Surgery," Carleton Chapman, Professor of Medicine, Southwestern Medical School of the University of Texas, Dallas, Texas
11:30-12:00	"Consultation Service of the Anesthesiologist" — C. R. Stephen, Professor of Anesthesia, Duke University School of Medicine, Durham, North Carolina

SECOND GENERAL SESSION

Monday, April 18th, 1960—1:30 p.m.
Ballroom, Pines Hotel
John W. Dodson, Hot Springs, presiding

P.M.

1:30- 2:00	"How to Organize Your Finances—Professional and Personal," Mr. Mark Myers, Dental-Medical Economics, Dallas, Texas
2:00- 2:30	"Osteoarthritis of the Hip," Harry D. Morris, Department of Orthopedics, Oschner Clinic, New Orleans, Louisiana
2:30- 3:00	Intermission

3:00- 3:30 "Present Thoughts on Primary Glaucoma of Interest to the General Physician," George Haik, Professor of Ophthalmology, Louisiana, State University School of Medicine, New Orleans

3:30- 4:00 "Virilizing Ovarian Tumors," Edmund R. Novak, Baltimore, Maryland

4:00- 4:30 "Obstructive Diseases of the Urinary Tract in Children," Robert Lich, Jr., Professor and Chairman, Department of Urology, University of Louisville, School of Medicine, Louisville, Kentucky

MONDAY EVENING, APRIL 18th

Cocktail Party — Buffet Dinner

7:00 p.m. Trio Club

Lamplighter Trio will play for dancing from 7:00 to 12:00.
There will be bus service from the Pines Hotel to the Trio Club.

FINAL GENERAL SESSION

Tuesday, April 19th, 1960 — 9:00 a.m.

Ballroom, Pines Hotel

D. L. Owens, Harrison, presiding

(The E.E.N.T. Section will meet in the Pines Hotel beginning at 9:00 a.m.)

Invocation: The Right Reverend Monsignor Joseph Gallagher, St. Joseph's Parish, Pine Bluff

A.M.

9:00- 9:30 "Current Immunization Procedures — Fact, Fancy and Fiction," Blair Batson, Chairman of the Pediatrics Department, University of Mississippi Medical Center, Jackson, Mississippi

9:30-10:00 "A Radiologist's Evaluation of the Hazards of Radiation Exposure in Diagnostic Radiology and Radioactive Fall Out," Isadore Meschan, Professor and Head of the Department of Radiology, The Bowman Gray School of Medicine, Wake Forest College, Winston-Salem, North Carolina

10:00-10:15 Intermission

10:15-10:45 "Cancer of the Colon," John Waugh, Surgical Section, Mayo Clinic, Rochester, Minnesota — Sponsored by the Arkansas Division, American Cancer Society

10:45-11:15 "Chemistry and Clinical Acumen in the Differential Diagnosis of Jaundice," J. R. Snavely, Professor and Chairman, Department of Medicine, University of Mississippi Medical Center, Jackson, Mississippi

MEMORIAL SERVICE

11:30-12:00 James M. Kolb, President, presiding

Invocation: Reverend Mr. John B. Hefley, Pastor, Lakeside Methodist Church, Pine Bluff

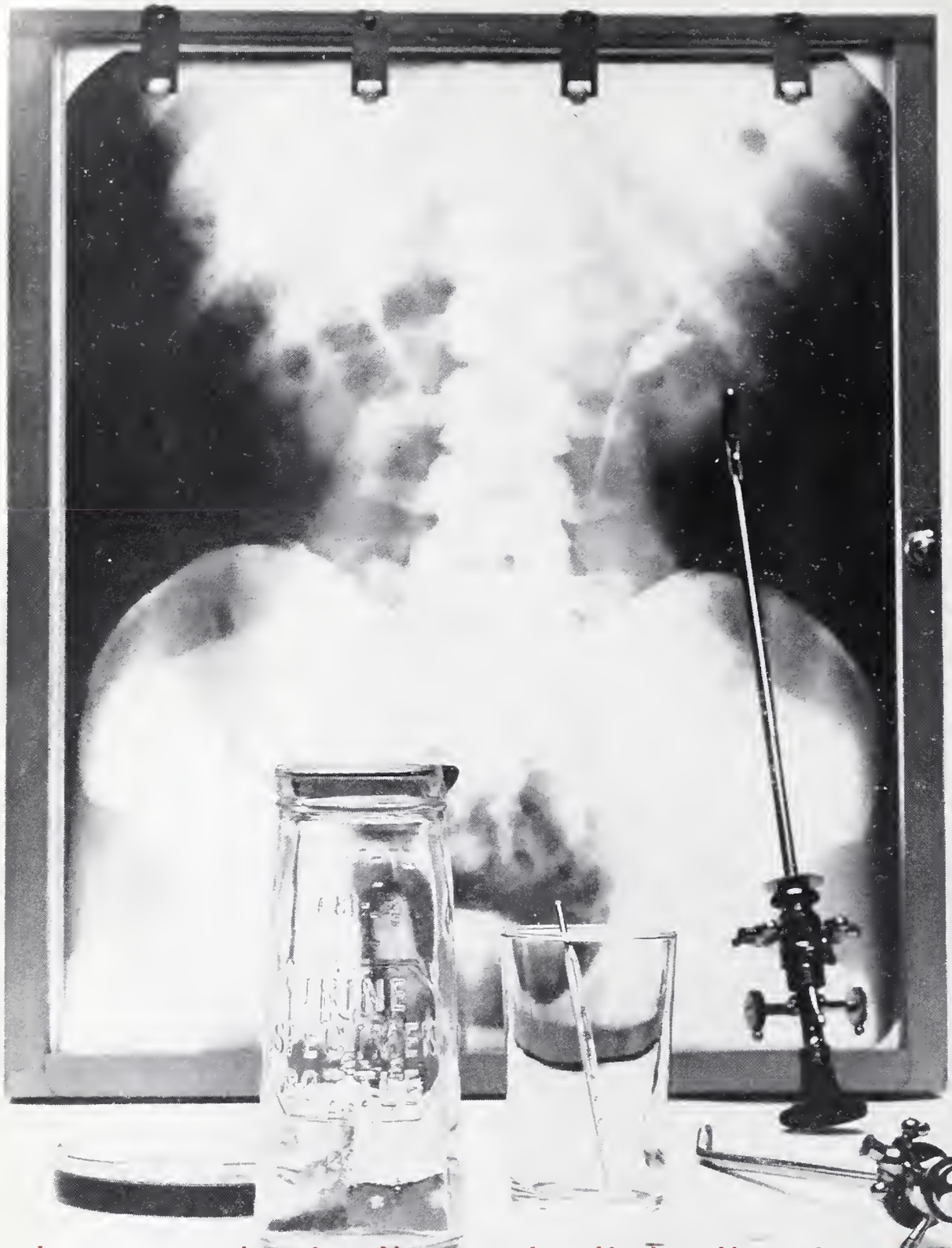
Reading of the names of the deceased Auxiliary members by Mrs. Paul Gray, Auxiliary president

Reading of the names of the deceased members of the Society by Dr. James M. Kolb, president

Memorial Address—Dr. Charles A. Taylor, Batesville

"Come Unto Him" from The Messiah by Handel—Mrs. Paul Gray, Batesville

Benediction—Reverend Hefley



when sulfa is your plan of therapy.

pharmacologically and clinically the outstanding

Rapid peak attainment — for early control — KYNEX® Sulfamethoxypyridazine reaches peak plasma levels in 1 to 2 hours[1,2] . . . or approximately one-half the time of other once-a-day sulfas.[2] Uninterrupted control is then sustained over 24 hours with the single daily dose . . . through slow excretion without renal alteration.

High free levels — for dependable control — More efficient absorption delivers a higher percentage of sulfamethoxypyridazine — averaging 20 per cent greater at respective peaks than glucuronide-conversion sulfas.[2] Of the total circulating levels, 95 per cent remains in the fully active, unconjugated form even after 24 hours.[3]

Extremely low toxicity[4] . . . only 2.7 per cent incidence in recommended dosage — Typical of KYNEX relative safety, toxicity studies[5] in 223 patients showed **TOTAL** side effects (**both subjective and objective**) in only six cases, all temporary and rapidly reversed. Another evaluation[4] in 110 patients confirmed the near-absence of reactions when given at the recommended dosage. High solubility of both free and conjugated product[6] obviates renal complications. No crystalluria has been reported.

Successful against these organisms: streptococci, staphylococci, E. coli, A. aerogenes, paracolon bacillus, Gram-negative rods, pneumococci, diphtheroids, Gram-positive cocci and others.

1. Boger, W. P.; Strickland, C. S., and Gylfe, J. M.: Antibiotic Med. & Clin. Ther. 3:378, (Nov.) 1956. 2. Boger, W. P.: Antibiotics Annual 1958-1959, New York, Medical Encyclopedia, Inc., 1959, p. 48. 3. Sheth, U. K.; Kulkarni, B. S., and Kamath, P. G.: Antibiotic Med. & Clin. Ther. 5:604 (Oct.) 1958. 4. Vinnicombe, J.: Ibid. 5:474 (July) 1958. 5. Anderson, P. C., and Wissinger, H. A.: U. S. Armed Forces M. J. 10:1051 (Sept.) 1959. 6. Roepke, R. R.; Maren, T. H., and Mayer, E.: Ann. New York Acad. Sc. 60:457 (Oct.) 1957.



once-a-day sulfa...

NOTE: Investigators note a tendency of some patients to misinterpret dosage instructions and take KYNEX on the familiar q.i.d. schedule. Since one KYNEX tablet is equivalent to eight to twelve tablets of other sulfas, even moderate overdosage may produce side effects. Thus, the single dose schedule must be stressed to the patient.

KYNEX Tablets, 0.5 Gm., bottles of 24 and 100. Dosage: Adults, 0.5 Gm. (1 tablet) daily, following an initial first day dose of 1 Gm. (2 tablets).

KYNEX Acetyl Pediatric Suspension, cherry-flavored, 250 mg. sulfamethoxypyridazine activity per teaspoonful (5 cc.). Bottles of 4 and 16 fl. oz. Recommended Dosage: Children under 80 lbs.: 1 teaspoonful (250 mg.) for each 20 lb. body weight, the first day, and ½ teaspoonful per 20 lb. per day thereafter. For children 80 lbs. and over: 4 teaspoonfuls (1.0 Gm.) initially and 2 teaspoonfuls daily thereafter. Give immediately after a meal.

KYNEX®

Sulfamethoxypyridazine Lederle

NEW—for acute G.U. infection AZO-KYNEX® Phenylazodiaminopyridine HCl—Sulfamethoxypyridazine Tablets, contains 125 mg. KYNEX in the shell with 150 mg. phenylazodiaminopyridine HCl in the core. Dosage: 2 tablets q.i.d. the first day; 1 tablet q.i.d. thereafter.

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

Lederle

TUESDAY, APRIL 19th

SPECIALTY SECTION MEETINGS

(There is no general session scheduled for Tuesday afternoon)

EYE, EAR, NOSE, AND THROAT

Pines Hotel

A.M.	
9:00	Call to order — President's address — Dr. Max F. McAllister "Experiences with Evisceration Procedures"
9:45	Dr. Mercer Lynch "Hoarseness, Cause and Correction" (with special emphasis on office treatment)
11:15	Dr. Joseph Bailey — "Fungus Infection in the Orbit" (with presentation of a case)
12:00	Luncheon and Business meeting
P.M.	
1:30	Dr. William Carabelle "Optic Neuritis in Children"
2:15	Dr. Phillip P. Ellis, "Advantages of Use of Tonography in Private Office Practice"
2:45	Dr. George Haik, "Points of Interest in Cataract Surgery"

ARKANSAS SOCIETY OF INTERNAL MEDICINE

Pines Hotel

12:15	Luncheon—Business meeting
2:00	Scientific program—all physicians invited
2:00	"Treatment of Severe Hepatic Insufficiency," Dr. Robert Snavely, Professor, Department of Medicine, University of Mississippi Medical Center, Jackson, Mississippi
2:45	"Hypoglycemia Associated with Non-Pancreatic Tumors"—Dr. Ben Price, Instructor, Department of Medicine, University of Arkansas Medical Center, Little Rock
3:05	Intermission
3:15	"The Hemodynamics of Aortic Insufficiency"—Dr. Carleton Chapman, Professor, Department of Medicine, Southwestern Medical School of the University of Texas, Dallas, Texas
4:00	"Pituitary Dysfunction Following Post-Partum Hemorrhage" —Dr. Charles Wilkins, Millard-Henry Clinic, Russellville

OBSTETRICS AND GYNECOLOGY

The Society of Obstetricians and Gynecologists will meet for lunch at 12:45 p.m. in the Garden Room of the Embers Restaurant of Pine Bluff Motel on Highway 65. Dr. Edmund R. Novak of Baltimore will be guest speaker. His presentation will be "Gynecological Diseases of Pregnancy" consisting of talks on "Abortion and Tubal Pregnancy" and "Hydatidiform Mole and Choriocarcinoma".

RADIOLOGY

Drs. Robert McDonald and Charles W. Anderson will entertain the Radiology Section with luncheon at the latter's home, 1411 Olive Street, at 12:30 noon on Tuesday, April 19th. A scientific session will follow the luncheon.

UROLOGY

The Section of Urology will meet in the Pines Hotel for luncheon at 12:00 noon on Tuesday, April 19th. Guest speaker, Dr. Robert Lich of Louisville, Kentucky, will discuss "Pyelectasis".

ANESTHESIOLOGY

The Section on Anesthesiology will meet in the Pines Hotel at 1:00 p.m. on Tuesday, April 19th. The program will consist of a discussion on "The Anesthesiology as a Consultant" with Dr. C. R. Stephen of Durham, North Carolina, and Dr. C. W. Shafer of Little Rock as participants.

DEDICATION OF NEW $7,000,000 JEFFERSON HOSPITAL

4:00 p.m., Tuesday, April 19th

The Honorable J. Wm. Fulbright, U. S. Senator, Speaker,
Tour of Hospital following dedication.

Bus will leave Hotel every ten minutes, beginning at 3:30 p.m.

TUESDAY NIGHT, APRIL 19th

7:30 p.m.

ANNUAL BANQUET AND INSTALLATION OF PRESIDENT

TRIO CLUB

There will be bus service from the Pines.
Master of Ceremonies: Louis Hundley
Awarding of first three golf prizes: J. Clyde Hart
Installation of President J. J. Monfort
Entertainment by Sally Miller Perdue, Miss Arkansas of 1958

DANCE

9:00 p.m. Music by Todd Ward and His Moonlighters

FINAL SESSION

HOUSE OF DELEGATES

Wednesday, April 20th, 1960

10:00 a.m.

Ballroom, Pines Hotel

COUNCIL MEETING

The new Council will convene for a brief reorganizational meeting immediately following adjournment of the Final Session of the House of Delegates.

COMMERCIAL EXHIBITORS — 1960 ANNUAL SESSION

The business firms who purchase exhibit spaces at our annual session contribute a great deal to the financing as well as to the educational aspects of the meeting. The number of visits to the commercial exhibits are the only criteria by which these companies can judge the value they receive from the investment in booth rental, displays and employee's time. You will be rewarded for the time you spend visiting the following exhibits:

COMMERCIAL EXHIBITORS

JULIUS SCHMID, INC.

An interesting and informative exhibit featuring IMMOLIN Cream-Jel for use without a diaphragm; RAMSES flexible cushioned diaphragm; RAMSES vaginal jelly; VAGISEC Jelly and Liquid for vaginal trichomoniasis therapy; and XXXX (Fourex) Skin Condoms, RAMSES and SHEIK Rubber Condoms for the control of trichomonal reinfection.

THE PURDUE FREDERICK COMPANY

The Purdue Frederick Company will present: Senokot, constipation corrective; Arthropan, new rapidly absorbed choline salicylate; Pharycidin, the first triple-action throat medication; Creumenex, Cerumenolytic for the quick removal of excessive creumen.

SANDOZ PHARMACEUTICALS

Sandoz Pharmaceuticals cordially invites you to visit our display at booth number 4. Featuring MELLARIL, the first potent tranquilizer with a selective action; PLEXONAL, preferred daytime sedative—relaxant; CAFERGOT PB, the most effective oral medication for relief of migraine headache with GI disturbance accompanied by tension. Any of our representatives in attendance will gladly answer questions about these and other Sandoz products.

ARKANSAS MEDICAL AND HOSPITAL SERVICE, INC.

SCHERING CORPORATION

The Schering exhibit will feature the following products: MIRADON, the new oral anticoagulant with predictable control proved by 5 years' preintroductory clinical experience; FULVICIN, the first oral antifungal antibiotic for ringworm; DELENAR, the new corticoid-relaxant-analgesic that keeps the rheumatic man in action, and RELA, the new muscle relaxant-analgesic that eases sprains, strains and low back pains.

KELEKET X-RAY COMPANY OF ARKANSAS

Featuring the Beck-Lee Cardio-O-Mite and the Mattern X-Ray.

CENTRAL SURGICAL COMPANY, INC.

Central Surgical will exhibit the new Brunswick furniture of advanced design, featuring lifetime fiberglass chairs, flow line and key line single and double pedestal desks, and flow line cabinets.

DOHO CHEMICAL CORPORATION

Doho Chemical Corporation is pleased to exhibit: AURALGAN, otitis media and removal of Cerumen; OTOSMOSAN, fungicidal and bactericidal in the suppurative and aural dermatomycotic ears; RHINALGAN, nasal decongestant; LARYLGAN, throat spray and gargle; MALLON CHEMICAL CORPORATION, Division of Doho, will exhibit RECTALGAN AND ERRMOPLAST.

GEIGY PHARMACEUTICALS

Geigy Pharmaceuticals cordially invites members and guests of the Association to visit its technical display. TOFRANIL, a new agent, specifically for depression, will be featured. Information on other products valuable in the therapy of rheumatic, metabolic, dermatologic and cardiovascular diseases will be presented by personnel in attendance.

CARRTONE LABORATORIES, INC.

You are cordially invited to chat with representatives of Carrtone Laboratories, Inc., who will be pleased to supply you with information, literature and samples of their popular ethical pharmaceutical products. You will have an opportunity to learn more of DROCOGESIC No. 3, TWIX, PRELARON, DEX-SED, PINROU, HOMVITE, and other fine pharmaceuticals.

WM. T. STOVER COMPANY, INC.

In the Wm. T. Stover Company booth one may view many news items proudly displayed. More proudly displayed will be the old faces of your old Stover friends. In addition to the many surgical items, make sure to see the Stover Scientific Laboratory Division display. Also shown is the most modern X-ray unit on the market today: The Picker "Anatomatic". (see ad this issue)

ABBOTT LABORATORIES

Of particular interest to physicians at the Abbott booth will be the presentation of Desoxyn Graduments — the new long-acting dosage form now being used in obesity cases. Abbott will also display antibiotics, hospital solutions and equipment. Our representatives will be on hand to assist you in every way possible.

A. H. ROBINS COMPANY, INC.

DIMETANE, the antihistamine unsurpassed in efficacy, and demonstrated in the literature as having the lowest incidence of undesirable side effects, is featured at the A. H. Robins exhibit. Cofeatured is DONNATAL the classic combination of natural belladonna alkaloids and phenobarbital. Also shown are the antirheumatics in the PABALATE "family"; and ROBAXIN (tablets and injectable), which relieves skeletal muscle spasm without sedation.

A. S. ALOE COMPANY

Visit Booth 16 where the A. S. Aloe Company will have on display a cross-section of their most complete line of physicians' supplies and equipment. Your Aloe representative will appreciate the opportunity of discussing mutual items of interest with you.

E. R. SQUIBB AND SONS

E. R. Squibb and Sons has long been a leader in development of new therapeutic agents for prevention and treatment of disease. The results of our diligent research are available to the medical profession in new products or improvements in products already marketed. At Booth 17, we are pleased to present up-to-date information on these advances for your consideration.

HERBERT COX CORRECT SHOES

Herbert Cox Shoes find use in medicine far beyond the treatment of flat or deformed feet. A senior executive member of the Little Rock firm will be present to answer questions.

ROCHE LABORATORIES

You are cordially invited to visit the Roche booth where our medical representatives will provide you with the latest information and literature on our products.

THE WILLIAM S. MERRELL COMPANY

For the first time, an effective anorexic agent is recommended for cardiac, hypertensive, and diabetic patients, New Tenuate is a hunger control agent so free of CNS stimulation it is used for nighttime hunger. Tenuate and other Merrell drugs will gladly be discussed by Merrell men.

KAY SURGICAL, INC.

We are proud to announce that we will be demonstrating the Ritter Universal Table together with many new items, such as: The Burdick EK3 Electrocardiogram. Our representatives will be Mr. Bill Omar, Mr. Van Oliver and Mr. Holt of the Ritter Company. Looking forward to the pleasure of seeing you and having you visit our display.

THE STUART COMPANY

The Stuart representatives extend a cordial invitation to physicians attending this meeting to discuss with them the latest pharmaceutical developments of the Stuart Company. Especially featured will be EFFERGEL, EFFERSYL and EFFERSYLLIUM, the first effervescent bulk laxatives. Also featured will be MULVIDREN—the Softab vitamin for all age groups.

MERCK SHARP AND DOHME

A new adrenocortical steroid is featured at the Merck Sharp and Dohme booth. "DECADRON" dexamethasone possesses all the basic actions and effects of other glucocorticoids but in different degree. "HYDRODIURIL", a new, orally effective, non-mercurial diuretic-antihypertensive agent is also of interest. Technically trained personnel will be present to discuss these and other subject of clinical interest.

J. A. MAJORS COMPANY

The latest publications of the W. B. Saunders Company will be on display for your examination: 1960 Current Therapy; Davis-Christopher, Textbook of Therapy; DePalma, Atlas of Fractures; Roberts, Difficult Diagnosis and Moore, Metabolic Care of the Surgical Patient.

MEAD JOHNSON AND COMPANY

The Mead Johnson exhibit has been arranged to give you the optimum in quick service and product information. To make your visit productive, specially trained representatives will be on duty to tell you about their products.

THE COCA-COLA COMPANY

Ice-cold Coca-Cola served through the courtesy and cooperation of the Coca-Cola Bottling Company of Southwest Arkansas, Pine Bluff, Arkansas, and The Coca-Cola Company.

PFIZER LABORATORIES

The Pfizer Laboratories' display has been specifically arranged for your convenience and to give you the maximum in quick service and product information. To make your visit worthwhile, technically trained Medical Service Representatives will be on hand to inform you of the latest developments in Pfizer Research.

G. D. SEARLE AND COMPANY

You are cordially invited to visit the Searle booth where our representatives will be happy to answer any questions regarding Searle Products of Research. Featured will be the new Aldostreone Blocking Agent for edema and ascites, Aldactone.

ELI LILLY AND COMPANY

You are cordially invited to visit the Lilly exhibit located in space number 29. The Lilly sales people in attendance welcome your questions about Lilly products and recent therapeutic development.

SCIENTIFIC EXHIBITS

The following scientific exhibits will be on display on the Mezzanine floor of the Pines Hotel:

(A) Arkansas Division, American Cancer Society

(B) "Saddle Block Anesthesia" — Eva Dodge, M.D., Department of Obstetrics & Gynecology, University of Arkansas Medical Center, Little Rock

(C) Association of American Physicians and Surgeons

(D) Cerebral Palsy, Sunshine School—Mrs. J. S. Jenkins

(E) Arkansas Academy of General Practice

Annual Committee Reports

REPORT OF COMMITTEE ON PUBLIC HEALTH

Ben Saltzman, Chairman

The Committee on Public Health has functioned through its sub-committees whose reports follow in order:

SUB-COMMITTEE ON RURAL HEALTH

Ben Saltzman, Chairman

The Committee on Rural Health had an excellent year. The chairman attended the National Rural Health Conference in Wichita, Kansas. This conference was outstanding despite very severe weather conditions. From it, several ideas were gleaned for the development of the 7th Arkansas Rural Health Conference. Also, at this meeting an outstanding speaker was obtained to address the Senior Medical Students and their wives at the annual Senior Medical Day.

Plans were made for the 7th Arkansas Rural Health Conference immediately following the National Conference. In attendance at the National Conference were most of the members of the Advisory Committee. They included Dr. Edgar J. Easley, member of the Committee on Rural Health, Dr. Charles R. Henry, member of the Council on Rural Health of the A.M.A., Dr. L. E. Drewery, chairman of the Arkansas Medical Society's Committee on Aging, Mrs. Mason G. Lawson, liaison, from the Woman's Auxiliary to the American Medical Association to the Rural Health Conference of the A.M.A., Dr. Bryant Pake, of the Arkansas Dental Association, Mr. Austin Vines, director of the Agricultural Extension Service, University of Arkansas, Mr. Waldo Frasier, executive vice-president of the Arkansas Farm Bureau and Mrs. William Wilkie, chairman of the women's committee of the Arkansas Farm Bureau Federation. These individuals acting with Dr. James M. Kolb, president of the Arkansas Medical Society; Mrs. Paul Gray, president of the woman's auxiliary; Mrs. Hoyt Choate, chairman of the Committee on Rural Health of the Woman's Auxiliary of the Arkansas Medical Society; Dr. John T. Herron, the State Health Officer; Dr. William L. Cloud, Arkansas State Dental Association; Miss Helen Robinson, Agricultural Extension Service, and Mrs. Hazel Jordan, State Home Demonstration Agent, worked with our Committee on Rural Health to formulate our conference on Rural Health.

Several committee meetings were held, all well attended by the Advisory Committee together with Dr. Huie H. Smith, Dr. Easley and the chairman of the Committee on Rural Health of the Arkansas Medical Society.

The theme of the conference was the "New Era of Aging" and the conference concerned itself with most of the problems of aging. The Committee on Aging of the Medical Society acting as co-sponsor. The other co-sponsors were the Agriculture Extension Service, The Arkansas Council of Home Demonstration Clubs, the Arkansas Farm Bureau Federation, the Arkansas State Dental Society, the Arkansas State Board of Health, Blue Cross-Blue Shield, and the Women's Auxiliary to the Arkansas Medical Society.

The conference was opened Thursday afternoon at 2:00 p.m. at the Marion Hotel in Little Rock with community singing lead by Mr. Karl Munson of the Agricultural Extension Service. The invocation was given by Dr. T. B. Hays, pastor of the Pulaski Heights Presbyterian Church of Little Rock. Dr. Charles R. Henry brought greetings from the A.M.A. Council on Rural Health and the Honorable Orval E. Faubus, Governor of the State of Arkansas, spoke to the assembly on the "Golden Years." This was followed by a talk by Mr. Aubrey Gates, director of Division Field Service of the A.M.A. on "Who Will Harvest My Wheat?" A milk break was provided by the Milk Producers in the Little Rock area.

Dr. L. E. Drewery of Camden, Arkansas, spoke on the Senior Citizens Council. Mr. Oliver E. Ebel, executive secretary of the Kansas Medical Society lead the discussion. Consultants were Dr. F. S. Crockett, chairman of the Council on Rural Health of the A.M.A. and Mrs. Charles W. Sewell of the Advisory Committee for the Rural Health Council of the A.M.A.

That evening a dinner was provided at the Hotel Marion. Dr. James M. Kolb, president of the Arkansas Medical Society brought greetings from the Society. Dr. R. B. Robins, member of the Board of Trustees of the A.M.A. was presented. He in turn introduced as our speaker for the evening Dr. Louis M. Orr, president of the American Medical Association who talked on the "New Era of Aging." Presiding during the July 30th session was Dr. Ben N. Saltzman, chairman of the Committee on Rural Health of the Arkansas Medical Society.

The next day, Friday, July 31st, Mr. Waldo Frasier, executive vice-president of the Farm Bureau Federation presided. Following the community singing, Mr. Henry E. Spitzberg, chairman of the Division of Aging, Health and Welfare planning council of Pulaski County, spoke on "S.C.A.T." (Senior Citizen's Activities Today). This was followed by a talk on "Nursing Homes in Arkansas" by Mr. Eugene Spratt, director of Divisions of Hospitals, Arkansas State Board of Health. Mr. William Beaumont, director of the American Nursing Home's Association discussed the "Nursing Home's Responsibility in Health Care." Mr. Marvin Altman, administrator of Sparks Memorial Hospital and Sparks Manor, Fort Smith, Arkansas, discussed "Arkansas' Million Dollar Home for Senior Citizens, Sparks Manor."

Dr. Wilma Donahue, chairman of Division of Gerontology, University of Michigan and Dr. Clark Tibbets, assistant director Special Staff on Aging, U. S. Department of Health, Education and Welfare, together discussed the "Age of Opportunity." Mr. Austin Vines, director of the Agricultural Extension Service, discussed "Com-

munity Improvement" and the plans of the Committee on Rural Health to enter into community improvement projects over the State.

Mrs. Charles W. Sewell closed the program with an inspirational talk on, "Going My Way."

The conference was very successful with more than 300 persons in attendance. We were honored with some of the top speakers in Medicine and Health in the United States. The committee plans to go ahead with a community improvement program that will bring health problems and solutions to almost every small community in the State of Arkansas.

REPORT OF THE CANCER CONTROL COMMITTEE

Jean Gladden, Chairman

The Cancer Control Committee of the Arkansas Medical Society has met as a group on only one occasion during the past year. The Committee met on February 4, 1960, at the Hotel Marion to discuss the possibility of the Public Health Service doing a mass cytological survey as it concerns uterine cancer in the State of Arkansas. Seven members of the Cancer Control Committee were present at this meeting. It was the unanimous opinion of all the members present that the Committee should recommend to the Council of the Arkansas Medical Society that the Committee is opposed to such a survey. Some members questioned whether more lives would be saved by cancer as a result of such a survey. Others felt that this placed the Federal Government in the private practice of medicine. It was also pointed out that the pathologists in the state have previously offered to do Papanicolaou smears without cost when the referring physician indicated that the smear was to be done on a charity patient.

The members of the Cancer Control Committee also are members of the Board of Directors of the Arkansas Division of the American Cancer Society. For the most part these members of the Cancer Control Committee have met regularly with the American Cancer Society, Arkansas Division Board meetings and other committee meetings and have more than fulfilled their obligations.

Much has been accomplished in the field of professional education as it concerns cancer in the state during the past year. This is a direct result of some of the work of some of the members of the Cancer Control Committee.

SUB-COMMITTEE ON MATERNAL AND CHILD WELFARE

J. F. Kelsey, Chairman

There has been no activity in the committee in the past year. Efforts were made to establish a committee for the study of maternal mortality in the State of Arkansas. This program was presented to a meeting of representatives of the districts. It was then considered that material obtained and recorded by this committee might well serve as evidence for malpractice suits. It was with considerable regret that this program was abandoned.

SUB-COMMITTEE ON INDUSTRIAL HEALTH

C. Randolph Ellis, Chairman

Since we had no knowledge of problems to be studied by this committee of Industrial Health, we have not met. Some aspects of this subject are studied by our insurance committee, which is doing an excellent job.

SUB-COMMITTEE ON TUBERCULOSIS

Harley C. Darnall, Chairman

There were no called meetings of the Subcommittee on Tuberculosis for the year 1959-60. Several matters were transacted; these were handled by phone and by mail.

On April 30, 1959, the Subcommittee approved a request from Dr. Herron's office in Little Rock to use a physician from the United States Public Health Department, who had been supplied to them. He was to be used in the Chest Clinics for Tuberculosis Control throughout the state. It was the unanimous opinion of all of the members of the Subcommittee that this physician should be utilized in this capacity, and Dr. Herron was so notified.

At the request of a committee from the Pulaski County Tuberculosis Association, a request was made of the Subcommittee for approval for several physicians to work with the State Health Office and the Governor to coordinate the work of the State Health Department and the two Sanatoriums, regarding the entire problem of tuberculosis throughout the state. This was handled by telephone and it was the feeling of the Subcommittee members that this committee could be appointed. This action was later deferred, due to the sickness of Dr. Browne, Superintendent of McRea Sanatorium.

A letter was received from Mr. Robert Schnee, executive director of the Arkansas State Tuberculosis Association, of November 24, 1959, regarding tuberculin testing in the schools of Arkansas. His request for tuberculin testing of school children was approved with the unanimous consent of the members of the Subcommittee and is to be referred to the Council of the Arkansas Medical Society for their consideration.

ANNUAL REPORT OF THE SUB-COMMITTEE ON MENTAL HEALTH

W. Payton Kolb, Chairman

The problems involved in the mental health of the community, the state and the nation continue to be of major concern to everyone concerned with the health of our population. Much has been said about this in the past and I think most of us are acutely aware of the problem. The magnitude of this problem may be realized when one considers that on any average day in the United States the number of persons hospitalized with psychiatric disorders equals the number of those hospitalized with all other illnesses combined.

In practically everything connected with mental health there is a deficit. It is our feeling that the most acute deficit is in personnel man power.

This is a problem in all of the states as well as Arkansas but probably more acute in our state than in some of the others. Steps are being taken to correct this and although the progress may seem quite slow there is definite progress being made and the people in our state involved in mental health are working very hard and very long hours to remedy this as well as the other problems.

There are groups of citizens in our State who cannot receive as adequate care for their needs in the mental health line as they desire for various reasons. These problems are being attacked vigorously and as I said before, although the progress seems quite slow definite progress is being made.

One of the answers to this problem which seems to be most encouraging involves new concepts of treatment involving the various modes of treatment.

At this time we realize that the best answer to mental health from all aspects involves better utilization of family doctor, community clinics, and general hospitals. Definite strides are being made along these lines.

Several plans are in progress at this time which are very encouraging and definitely promise a brighter future for the individual with emotional and mental illness. To this time the major responsibility of the State Medical Society seems to be along the lines of keeping abreast of these newer developments and individual members working closely with the mental health groups in the development of these plans.

Your Chairman attended the Sixth Annual Conference of Mental Health Representatives of the State Medical Association which was held in Chicago in November of 1959. The theme of this meeting was the role of organized medicine and its relationship to the hospitalized patient in the realms of 1. State hospitals and other public mental hospitals; 2. The private mental hospitals area; 3. Psychiatric services in general hospitals area; 4. In the outpatient psychiatric clinics area; 5. In a general rehabilitation services area; and 6. In the area of medical-legal aspects of commitment, discharge and other court procedures relating to the mentally ill.

From this meeting it seems evident that all members of the medical profession are becoming more strongly united in the battle against mental illness. There is much work to be done but at this point the work is encouraging.

REPORT OF THE SUB-COMMITTEE ON LIAISON WITH THE STATE BOARD OF HEALTH

W. Myers Smith, Chairman

There were no meetings of the Sub-committee on Liaison with the State Board of Health, and no activity during 1959.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

C. C. Long, Chairman

The committee on medical education has met and considered various aspects of the current problems concerning the school of medicine and the state medical society. No formal action was taken; however, the opinion of the committee members present was that as much information as possible concerning problems being encountered by the school should be taken to county medical societies and other medical groups so that more cooperation could be obtained in solving many problems confronting the school of medicine at this time.

Another meeting of this committee is scheduled to be held in February to discuss patient referrals and student applications for admissions to the school of medicine.

REPORT OF THE SUB-COMMITTEE ON POSTGRADUATE EDUCATION

John T. Riggin, Jr., Chairman

The Sub-Committee met with the Committee on Medical Education of the Academy of General Practice during the annual session of the Academy in October. The results of the 1958-59 postgraduate program were reviewed briefly and plans for 1959-60 were outlined. As determined in 1958 at the time of re-establishment of postgraduate work at the University Medical Center, the main effort of the courses of 1959-60 again is being directed toward physicians in general practice. A summary of the current status of postgraduate efforts follows:

1958-59 Series

There were six of the standard-type one or two day courses, the subject of which appeared in this Committee's report last spring. 83 Arkansas physicians attended these six courses, and the number of accredited instruction hours provided in the courses were 73. The total number of Category I points reported to the Academy of General Practice was 1,603. The major portion of the instruction was provided by members of the faculty of the School of Medicine, the remainder by five guest faculty brought in from out-of-state.

The most ambitious and extensive single undertaking has been the series of electrocardiography seminars which began in April 1959 and which is being continued during the current academic year. There have been three seminars in this series to date, and participants in the courses number 42. An adjustment in accreditation after the first course allows 65 hours for successful completion of one of these courses, so that a potential total of 2,602 Category I points can be earned by physicians in this group. The course includes two days of instruction at the Medical Center followed by 20 correspondence lessons. The series was developed and is directed by Dr. James S. Taylor, and new sessions will be started as soon as earlier participants have completed their work.

1959-60 Series

In addition to the continuing ECG Series, eight other seminars have been developed for presentation during the current academic year. Subject material includes clinical cardiology, pediatric dermatology and allergy, radiology and anesthesiology as especially applicable to general practice needs, operative obstetrics and office

gynecologic proeedures, common fluid and eleetrolyte problems, basie problems in child psychiatry, and orthopedic injuries. As of February 1 four of these courses have been given (one of them twiee) with a combined registration of 59 physicians who received a total of 363 accredited hours of instruction. The remaining sehedule calls for one eourse in February, two in March and one in May.

Regional ("Circuit-type") Course Plans

It had appeared that initially all efforts should be direeted toward the re-institution of a firm, continuing program of postgraduate education at the Medieal Center. With the seeond year's series underway, the Sehool of Medicine has indicated that a new phase of instruction will be opened in the form of programs to be offered for presentation in regional centers about the state.

Shortly after the proposal was made, the Academy of General Praetice reeeived supporting funds from two pharmaeeutical firms requiring immediate use this year. Accordingly, the Academy is proeeeding with plans for several programs during 1960. The first sueh session was held in Clarksville on February 25 and the seeond in Monticello on March 24. The Sehool Of Medieine has undertaken to arrange the program for the Montieello meeting, and in view of the several regional meetings already planned, it would appear that the Sehool eould best fulfill its functions for the remainder of the academie year by supporting the Academy programs rather than staging separate ones. The several persons concerned with these plans are mindful of the need to develop a well-balaneed, coordinated series of postgraduate sessions, both "eentral" and regional, for 1960-61 and subsequent years. This would best be achieved as a eooperative venture by the Medical Soeiety, the Academy and the Sehool of Medieine.

REPORT OF COMMITTEE ON HOSPITALS

Guy Shrigley, Chairman

This eommittee has had no matters requiring formal aetion presented during the past year.

Your eommittee stands ready to serve and act on any matters coming under its jurisdiction.

REPORT OF PUBLIC RELATIONS COMMITTEE

C. Lewis Hyatt, Chairman

Aetivities of the Publie Relations Committee during the past year have been as follows:

(1) Sponsored Senior Medical Students Day as is done eaeh year. It is my understanding that this was a highly suecessful day and we recommend that it be continued each year as in the past.

(2) Sponsored with the Arkansas Academy of General Praetice and the Pulaski County Medieal Society a publie relations exhibit from the A.M.A. at the Arkansas Livestock Show during the fall meet. This exhibit seemed to be a real suecess and I recommend that we again have such an exhibit at this Fair and at any other Fairs or meetings where large numbers of people will attend.

(3) Contributed $100 to the State Science Fair, sueh funds to be used in assisting the winners to get to the National Science Fair. I suggest that we eontinue this aetivity and expand it if possible.

(4) Released a medical public relations column, YOU AND YOUR DOCTOR, in the Advance Montieellonian, a local newspaper at Monticello, Arkansas.

(5) Distributed to committee members and other persons public relations pamphlets and literature and correspondence from the A.M.A.

(6) Wrote a letter of appreciation and commendation to the editor of the Pine Bluff Commereial for a series of editorials whieh were favorable to organized medieine.

REPORT OF THE ADVISORY COMMITTEE OF THE WOMAN'S AUXILIARY TO THE ARKANSAS MEDICAL SOCIETY

Louis K. Hundley, Chairman

Under the inspired leadership of Mrs. Paul Gray of Batesville, and her fine Board, the Auxiliary has been very active during the past year. Membership has continued to grow. The Auxiliary has worked closely with the Legislative Committees of the State Society, and the A.M.A. They have earried on the various programs eoncerning the health and welfare of our people, and have supported the Soeiety's activities in these fields. The Ark-Map, the Auxiliary's News Letter, has been inereased in size and content, and is an exeellent publieation. The Auxiliary officers have worked elosely with the Advisory Committee throughout the year. A detailed description of the aetivities will be found in the report of the President of the Auxiliary.

REPORT OF ANNUAL SESSION ARRANGEMENTS COMMITTEE

John Wood, Chairman

First, I wish to state that the members of this committee were most eooperative and helpful in seeuring the outstanding scientifie speakers who will appear at our annual session this year in Pine Bluff. We find that it is inereasingly diffieult to seeure the outstanding elinieians that we have been aecustomed to having in the past, and in some cases, of eourse, it was only through the close personal friendship of committee members and members of the soeiety that we were able to obtain these prominent speakers. More and more the question of an "honorarium" comes up, sinee there is sueh a demand for some of these men and many elinical societies and groups do charge fees for the participating physicians.

Diffieulty was encountered in obtaining the names of prospective speakers from the various seetion groups. It is the eommittee's reeommendation that two prospective speakers be seleeted at the section meetings during the annual session and submitted to the executive secretary prior to the termination of the session. This would obviate a wealth of correspondence and

telephone calls for the session committee the following year.

We feel that the members and auxiliary of the Jefferson County Medical Society headed by Dr. Louis Hundley, chairman of the local arrangements committee have done a splendid job in preparing for the 1960 session meeting in Pine Bluff.

REPORT OF THE COMMITTEE ON CONSTITUTIONAL REVISION

W. R. Brooksher, Chairman

The following amendments, proposed at the 1959 annual session of the Society, have been considered by the Committee.

(a) Chapter 9, Section 5, By-laws amended to add thereto:

"No persons shall be eligible for membership in the Arkansas Medical Society or of any county medical societies who knowingly participates in, or accepts benefits from, any plan of practice of medicine which denies or limits to the patient the free and independent selection of his or her physician."

(b) Article IV, Section 2, be amended to add thereto:

"Any physician who has earned the regard of his colleagues to the extent that he has been carried on the rolls of a county medical society since 1950, has maintained regular attendance at meetings, but is not a member of the Arkansas Medical Society, will be entitled to membership in the State Society."

The committee has voted against adoption of these amendments.

BUDGET COMMITTEE

W. R. Brooksher, Chairman

The Budget Committee respectfully submits the following proposed budget for 1960:

INCOME

Membership dues		$ 34,500.00
Journal Advertising		42,000.00
Booth Income		4,500.00
Annual Session Banquet and Registration		5,625.00
A.M.A. Reimbursement		240.00
Income from Medicare		25,000.00
Miscellaneous		150.00
Interest on Bonds		.00
Employee Contribution, Retirement Fund		208.00
		$112,223.00

EXPENSES

Salaries—		
Medicare	$ 10,467.00	
Journal	7,200.00	
A.M.S.	11,323.00	
Total		$ 28,990.00
Travel and Convention		8,250.00
Journal Printing		29,000.00
Stationery and Printing:		
Medicare	400.00	
A.M.S.	600.00	
Total		1,000.00
Office Supplies & Expense:		
Medicare	4,000.00	
A.M.S.	1,500.00	
Total		5,500.00
Telephone and Telegraph:		
Medicare	850.00	
A.M.S.	1,800.00	
Total		2,650.00
Rent:		
Medicare	975.00	
A.M.S.	741.00	
Total		1,716.00
Taxes:		
Medicare	280.00	
A.M.S.	220.00	
Total		500.00
Council Expense		500.00
Postage:		
Medicare	850.00	
A.M.S.	1,800.00	
Total		2,650.00
Dues & Subscriptions		450.00
Contributions		950.00
Annual Session		7,500.00
Rural Health Committee		500.00
Public Relations Committee		500.00
Senior Medical Day		600.00
Woman's Auxiliary		1,100.00
Special Committees		400.00
Auditing:		
Medicare	875.00	
A.M.S.	125.00	
Total		1,000.00
Miscellaneous		500.00
Bond Premiums & Insurance:		
Medicare	300.00	
A.M.S.	100.00	
Total		400.00
Legal Services		1,750.00
Retirement:		
Medicare	1,612.47	
A.M.S.	1,918.03	
Total		3,531.00
Office Equipment		1,750.00
Contingency Fund		5,000.00
Depreciation:		
Medicare	405.00	
A.M.S.	270.00	
Total		675.00
		$107,362.00

SENIOR MEDICAL DAY

W. R. Brooksher, Chairman

The 1959 annual Senior Day was held May 23rd, 1959 with an exceptionally fine attendance from the Senior Class. It is felt that this activity is a rewarding one for the Arkansas Medical Society and for the graduating medical stu-

dents and its continuation is recommended. The Committee would like to urge that more of the officers and members of the Society express their interest by attendance.

COMMITTEE ON AGING

L. E. Drewery, Chairman

Three meetings of the Committee on Aging have been held during the calendar year of 1959. These meetings have been held in conjunction with the Arkansas Joint Council to Improve the Health Care of the Aged. In addition, the chairman has been appointed as Sub-Chairman of the Health Committee of the Governor's Commission on Aging. The latter part of June 1959, the chairman attended the National Leadership Training Institute for the White House Conference on Aging at Ann Arbor, Michigan. Two television appearances on Channel 11 were made by the chairman. A copy of the minutes of the meeting of the Joint Council to Improve the Health Care of the Aged for September 17, 1959 is attached.

1. A survey of the nursing home problem has been completed and 4,000 additional beds are now needed.
2. The Committee has, whenever possible, conveyed to the Governor's Commission on Aging, the concept that the problems of the Senior Citizens must be met whenever possible on the local and state level.
3. The committee has worked with the Arkansas Chapter of the American Institute of Architects and the Governor's Commission on Aging to set up an Architectural Forum to be held in the Lafayette Hotel, March 3rd. The principal resource person will be Wilma Donahue, Ph.D., Chairman of the Division of Gerontology, University of Michigan, Ann Arbor, Michigan. Housing of the elderly, Nursing Homes, Geriatric Hospitals, and Retirement Centers will be emphasized. Types of sponsorship, planning, and methods of the financing will be discussed by outstanding leaders in the field.
4. Resolutions were sent by the Chairman to the House of Delegates at the annual meeting in Fort Smith requesting a special insurance contract to provide hospital and medical care for our Senior Citizens. The other resolution requested an active committee to be set up on Rehabilitation. A Regional Conference on Aging will be held in New Orleans, February 17th and 18th at which time a decision will be made tentatively as to what Arkansas Physicians will attend the White House Conference on Aging to be held in Washington D. C., January 9, 1961.

Observations and Recommendations of the Committee on Aging:

1. The contract for Senior Citizens for hospital and medical care has been under study for several months, but no new contract as yet is available for our Senior Citizens. Such a contract is urgent.
2. Also a Rehabilitation Committee has been set up. We understand that no committee meetings has been called by the chairman. Rehabilitation has a great part to play in the role of health of our Senior Citizens. Our committee recommends that Rehabilitation under Don Russell be given every possible assistance by the Committee on Rehabilitation to make it one of the most outstanding programs in the nation. This program must be medically oriented.
3. We recommend that a Gerontologic Society be formed in Arkansas whereby all people interested in the problem of aging can furnish coordinated leadership to better solve the problems of aging in our state.
4. The development of a health program in Arkansas is needed for the medically indigent patient with emphasis on out-patient or ambulatory care with the assignment of responsibility for medical and health matters to a Medically-Oriented Health Agency. The welfare department is now spending four million dollars annually for the hospitalization of Old Age Assistance Recipients.
5. Resolutions, Conferences, Proclamations, Letters, are poor weapons against the For- and Bill. Excellent medical and hospital care must be available for our elderly people in their own community, by their own physician, whenever needed, for a price they can afford to pay. Shall we do it, or must some one do it for us?

ARKANSAS JOINT COUNCIL TO IMPROVE THE HEALTH CARE OF THE AGED

September 17, 1959 12 Noon
HOTEL MARION

Attending: Bill Beaumont, A.N.H.A., Little Rock; Miss Ruth Richardson, A.N.H.A., Conway; Miss Lois J. Beardsley, A.N.H.A., Little Rock; Mrs. Grace Mosley, Pres., A.N.H.A., Texarkana; Mrs. Maude Gillespie, A.N.H.A., Hope; Mrs. C. C. Long, Women's Aux., A.M.S., Ozark; Mrs. Ruth Rankin, A.S.P.N.A., Secretary, Little Rock; Miss Georgia Gephardt, Ex. Dir., Ark. State P.N. Assn., Little Rock; Miss Hilda Scott, Ex. Dir., Ark. State Nurses Assn., Little Rock; Bryant B. Pake, D.D.S., Ark. Dental Association, Little Rock; G. L. Crutchfield, A.H.A., Little Rock; Graham T. Nixon, Ex. Dir., A.H.A., Little Rock; Ben N. Saltzman, M. D., Chr., Com. on Rural Health, Ark. Medical Society, Mountain Home; Miss Helen Robinson, Agricultural Extension Service, Fayetteville; A. M. Washburn, M.D., State Health Dep't., Little Rock; Father J. W. Kordsmeier, A.H.A., Little Rock; Marvin Altman, A.H.A., Fort Smith; Paul C. Schaefer, Ark. Medical Society, Fort Smith; James M. Kolb, M.D., Ark. Medical Society, Pres., Clarksville; L. E. Drewery, M.D., Ark. Medical Society, Camden; Howard I. Wells, Jr., Ex. Sec'y., Joint Council to Improve Health Care of the Aged, Chicago, Illinois; Nelson Evans, A.H.A., Little Rock.

Dr. L. Drewery, acting chairman, opened the meeting and stated that this group had been meeting since November 1958, and that the purpose of this meeting was to explore the possibilities of continuing this organization, and if it is continued what relationship, if any, would be established with the Governor's Commission on Aging. Dr. Drewery introduced Mr. Howard I. Wells, Jr., Executive Secretary of the Joint Council to Improve the Health Care of the Aged. Mr. Wells stated that the objectives of the National Joint Council are to correlate the efforts and resources of Member Organizations, as the principal purveyors of Health Care for the aged, and to establish liaison and a cooperative relationship with other organizations working with similar purposes in: (1) identifying and analyzing the health needs of the aged; (2) appraising available health resources for the aged; (3) Fostering effective methods of payment for the health care of the aged; (4) developing community programs to foster the best possible health care for the aged; (5) fostering health education programs of the aged, and (6) informing the public of the facts related to health care of the aged. Another objective is to stimulate and encourage counter-parts on the state level . . . Seven states have organized councils . . . It is hoped that state organizations will eventually include representation from other groups whose major activity is directly concerned with health care . . . Nine states are in the process of organizing . . . State councils should serve as a mechanism for:

1. Exchange of information on activities and plans of its members and other organizations active in the field of aging.
2. Coordination of related programs conducted by member organizations.
3. Development, where indicated, of jointly sponsored projects, and
4. Dissemination of information on health care of the aged to the public.

Mr. Wells, in illustration, cited the statement and objectives developed by the Iowa Joint Council:

"Recognizing that the senior citizens of the State of Iowa have health needs peculiar to their group because of differences in types of illness, economic status and public attitude, and recognizing the principal sources of health care in the State for all groups is embodied in the membership of the Iowa State Medical Society, Iowa Dental Association, Iowa Nursing Home Association, and the Iowa Hospital Association, this Council is formed for the present and future joint study and planning of the health needs of the aged in Iowa.

"The objectives of the Council shall be:

1. To cooperate with the National Joint Council to Improve the Health Care of the Aged.
2. To co-ordinate the activities of the parent organizations represented on the Iowa Council in the Health Care of the Aged.
3. To study by all means available the health problems of the aging population in Iowa.
4. To develop as far as possible co-ordinated voluntary programs to solve problems that have been shown to exist in health care of the aged."

The Joint Council has pushed development of the Governor's Commission on the state level. The greatest value of the National Joint Council will be to serve as a clearing-house for the state councils — sharing with all programs which have proven effective at the state and local level. Mr. Wells asked the question, "Will it be helpful to have a second National Joint Council meeting before the White House Conference?" No formal answer was given, but there were expressions indicating such a meeting would be very beneficial.

Dr. Drewery explained the formation of the Arkansas Joint Council. He also announced that sub-committees have been set up from the Governor's Commission as follows: (1) Housing; (2) Employment; (3) Health; (4) Education. He reported that the Governor was willing to appoint additional members. The Governor's Commission must submit a state program and the progress made by October 5, 1960, in order that the material may be organized for the White House Conference to be held January 9-12, 1961. He asked for suggestions as to whether the state Joint Council should continue, or act only as the Health Sub-committee of Governor's Commission.

The Governor's Commission has an Executive Secretary, Mrs. Mary McCammon, and offices in the Employment Security Division, and they are now setting up county organizations.

Miss Helen Robinson said that careful study should be given on the county level to establishing hospitals and nursing homes. County organizations will need much professional assistance if they are to make proper progress, she stated.

Mr. Bill Beaumont explained that the Advisory Council of the State Board of Health is an agency that must certify the need before construction of hospitals and nursing homes is approved. A survey made by nursing homes revealed that only 7 percent of the aged are in nursing homes. There is a need to accumulate some material on the home nursing program; on building plans to include clinics for the aged — and dental service.

Dr. Kolb moved that we properly organize as a Joint Council and function as a Joint Council, with Dr. Drewery as chairman. He explained that this is a professional group and could give continuous expert advice, and should also continue to be concerned with all of the problems of the aged. Mr. Paul Schaefer seconded Dr. Kolb's motion. Motion carried unanimously.

Dr. Saltzman pointed out that two committees meant duplication of services.

A motion by Dr. Kolb — Dr. Saltzman — to offer the organization's assistance to the Governor's Commission carried.

Mr. Beaumont read the four proposals of the National Joint Council:

(1) Exchange of information on activities and plans of its members and other organizations active in the field of aging,

(2) Coordination of related programs conducted by member organizations,

(3) Development, where indicated, of jointly sponsored projects, and
(4) Dissemination of information on health care of the aged to the public.

A move to adopt these proposals was made by Beaumont — Washburn — carried.

Dr. Drewery read a resolution (copy attached) passed at Ann Arbor, June 26, 1959, suggesting that the **Aging Bulletin** be used as a clearing house for information.

Mr. Nixon was nominated as secretary-treasurer of the Joint Council. Dr. Saltzman moved that nominations be closed and election by acclamation — Schaefer. Motion carried.

Mr. Beaumont was nominated for vice-chairman by Miss Robinson. Mr. Crutchfield moved that nominations cease and that Mr. Beaumont be elected by acclamation. Dr. Saltzman seconded the motion. Motion carried.

Organizations that were present and will be included in the Joint Council are:

1. Arkansas Dental Association
2. Arkansas Hospital Association
3. Arkansas Medical Society
4. Arkansas Nursing Home Association
5. Arkansas Medical Auxiliary
6. Practical Nurses Association
7. State Nurses Association
8. Extension Service
9. State Board of Health

Dr. Saltzman moved that the Arkansas Dental Association, the Arkansas Hospital Association, the Arkansas Medical Society and the Arkansas Nursing Home Association contribute $25.00 each for budget purposes. Dr. Pake seconded this motion, which carried unanimously.

A recommendation was made to advise Miss Fannie Beard that the health groups of the Joint Council be contacted in the organization of the county group. A committee to establish the objectives of the county group was named: (1) Miss Hilda Scott; (2) Miss Georgia Gephardt; (3) Mr. Nelson Evans; (4) Mr. Graham Nixon; (5) Dr. L. E. Drewery, and representatives from other agencies.

The meeting adjourned at 2:15 p.m.

REPORT OF TRAFFIC SAFETY COMMITTEE

C. Lewis Hyatt, Chairman

Activities of the Traffic Safety Committee for the past year have been as follows:

(1) Received and distributed pamphlets and correspondence to committee members and others from the A.M.A. Traffic Safety Committee, from other State Medical Societies and from the National Safety Council.

(2) Corresponded with Dr. Lamm, chairman of Committee on Medical Aspects of Automobile Injuries and Deaths of the Texas Medical Association and with Mr. C. Lincoln Williston, Executive Secretary of the Texas Medical Association in view of assisting them to organize a committee with a similar function to ours and mailed them suggestions, pamphlets and reprints of material which has been published by this committee, including an article "Traffic Accidents."

(3) Wrote letters of commendation to several newspapers on editorials about traffic safety.

REPORT OF THE ADVISORY COMMITTEE TO THE ARKANSAS SELECTIVE SERVICE SYSTEM

Gerald H. Teasley, Chairman

The Advisory Committee to the Arkansas Selective Service System has been practically inactive during the past twelve months. Volunteers from dental school graduates and interns completing their first twelve months of service have supplied the military service with sufficient personnel to make the Selective Service calls unnecessary. No change in the present activity is contemplated at this time.

COMMITTEE ON LIAISON WITH THE STATE WELFARE DEPARTMENT

C. Randolph Ellis, Chairman

Your Liaison Committee with the Welfare Department will meet with the director of this department and the executive committee of our society on February 14. We shall have a report at our annual society meeting.

FIRST COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

R. C. Shanlever, Chairman

As Chairman of the First Councilor District Professional Relations Committee for the year of 1959, I am glad to report that our committee received no complaints from any individual or company. Our only work during the year in this committee was to review Medicare Special Reports and did not have too many of these.

SECOND COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Jabez Jackson, Chairman

There have been 10 cases submitted to the Committee and all in Medicare. These were settled with what we hope were no hard feelings. Seven of these cases were in favor of the Government and three decisions were to sustain the claims of the Doctor.

The Committee and Physicians have worked together most cooperatively.

We have had no complaints from private patients in this district.

THIRD COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Milton C. John, Jr., Chairman

The Third Councilor District Professional Relations Committee handled five cases concerning Medicare during the past year. An opinion was submitted in each case which was settled satisfactorily to those concerned.

One other case involving the patient's complaint of overcharging was thoroughly inves-

tigated and a satisfactory adjustment was made in favor of her physician. The committee used every method possible to settle this claim tactfully and we feel that the patient was completely satisfied after a detailed explanation was made regarding the care of her late husband.

FOURTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

H. T. Smith, Chairman

The only complaints filed with the Fourth Councilor District Professional Relations Committee during the year have been Medicare cases. All were settled satisfactorily.

SIXTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

R. R. Kirkpatrick, Chairman

This committee is composed of me as chairman, J. G. Martindale, M. D., Hope, and O. G. Hirst, M. D., Prescott — deceased. We have handled thirteen cases. They were divided as follows: Ashdown 1, DeQueen 1, Hope 1, Prescott 1, Texarkana 9. Only one doctor was involved the second time. Causes for questioning reports:

(1) Overcharge—5x
We feel that four of these were justified.
(2) Too many daily hospital calls—2x
We feel that both of these were justified.
(3) Question of mileage—1x
Charge for mileage was justified.
(4) Emergencies—3x
All were justified.
(5) Consultation—1x
It was justified.
(6) Civilian complaint charging that doctor and hospital mistreated and neglected patient.
Investigation revealed that the complaint was absolutely unfounded.

Besides numerous long distance telephone calls it was necessary that I make one trip from Texarkana to Hope, and one from Texarkana to Prescott.

REPORT OF SEVENTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

J. W. Kennedy, Chairman

This committee has processed 12 to 15 Medicare bills of which there was some discrepancies. All were solved satisfactorily on a local basis.

In 1959 there were no cases brought up before this committee concerning patient-physician relationship.

REPORT OF THE EIGHTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Henry G. Hollenberg, Chairman

Our Committee has functioned throughout the year with membership consisting of Dr. Joe Sanderlin, Dr. T. J. Raney, and the undersigned. During the latter part of the year because of the press of work Dr. Clyde Rogers was added as a member. Dr. Joe Sanderlin has now resigned from the Committee and Dr. Richard Logue is taking his place.

This Committee meets at frequent but irregular intervals. The agenda consists almost entirely of a review and consideration of Medicare claims. We have attempted to handle these matters in detail and with a sense of responsibility in the dispersing of public funds. We wish to thank the members of our District for the cooperation they have given and for tolerance of our efforts.

During the year there has been only one grievance handled by this Committee. Pulaski County has its own Grievance Committee but it has been a relatively inactive Committee because of lack of complaints.

REPORT OF THE TENTH COUNCILOR DISTRICT PROFESSIONAL RELATIONS COMMITTEE

Art Martin, Chairman

There have been no complaints made to the Professional Relations Committee in the past year. The activities of the committee have been confined to the review of fourteen Medicare cases with recommendations to the Medicare committee.

REPORT OF DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION

Clinical Meeting, December 1959
James M. Kolb, Delegate

The outstanding feature of the House of Delegates of the American Medical Association was the addresses made by Senator Lyndon B. Johnson, Johnson City, Texas, Majority Leader in the United States Senate, and Speaker of the United States House of Representatives, Sam Rayburn, of Houston, Texas. Both made excellent talks. Senator Johnson kept the House "Spellbound" for forty-five minutes. The theme of his talk was the restoration of the American way of life and the effort on the part of each individual necessary to bring this about. Even the "Yankees" from up North accepted his speech without criticism. I had a number of them remark that that was not a Southern Democrat talk, but a Northern Republican. Our reply was that it was neither, but that of a true American.

In the Journal of the American Medical Association, December 26, 1959, pages 2333 to pages 2335 inclusive, is a detailed report of actions taken. These include:

1. A third paragraph to the recommendations in the report of the Commission on Medical Care Plans approved previously in Atlantic City last June.

> "Lest there be any misinterpretation, we state unequivocally that the American Medical Association firmly subscribes to freedom of choice of physician and free competition among physicians as being

prerequisites to optimal medical care. The benefits of any system which provides medical care must be judged on the degree to which it allows of, or abridges, such freedom of choice and such competition."

2. Physician-Hospital Relations. The House received twelve resolutions on the subject of relationships between physicians and hospitals. It reaffirmed the 1951 "Guides for Conduct of Physicians in Relationships with Institutions." It also declared that "all subsequent or inconsistent actions are considered superceded."

The House also accepted recommendations that (1) the House of Delegates acknowledge the need to strengthen relationships with hospitals by action at state and local levels, (2) the Board of Trustees of the Association continue to maintain liaison with the Board of Trustees of the American Hospital Association, and (3) the Council on Medical Service review this entire problem to ascertain if there have been actions inconsistent with the 1951 Guides.

3. Scholarship Program. To help meet the need for an increasing number of physicians in the future, the House approved the creation of a special study committee which was asked to:

(1) Present a scholarship program, its development, administration and the role of the American Medical Association in fulfilling it.
(2) Ascertain the maximum to which medical schools could expand their student bodies while maintaining the quality of medical education.
(3) Ascertain what universities can support new medical schools with qualified students and sufficient clinical material for teaching—either on a two year or a full four year basis.
(4) Investigate the securing of competent medical faculties.
(5) Investigate financing of expansion and establishment of medical schools.
(6) Investigate financing of medical education as to the most economical methods of obtaining high quality medical training.
(7) Develop methods of getting well-qualified students to undertake the study of medicine.
(8) Investigate the possibility of relaxing rigid geographic restrictions on the admission of students to medical schools.

The House urged that the special committee be implemented promptly with adequate funds and staff so that it may make an initial report by June, 1960.

4. Miscellaneous actions covered forty-four resolutions and a large volume of annual, supplementary and special reports. These are reported in the Journal of the American Medical Association referred to above.

Your delegate is proud of the fact that he represents one of the leading state medical societies of the nation in the House of Delegates of the American Medical Association. There is only one field that I have to drop my head in shame and that is the matter of the American Educational Foundation. Even Arizona, one of the smallest states in the union, gave $9,263.00 this past year to this foundation. California, one of the largest states, gave $156,562.00.

It is hoped that, through the perfection of the organization of the Medical Education Foundation of Arkansas, this will be corrected.

REPORT OF THE COUNCIL

Joe Verser, Chairman

The Council met June 28th at the Wadley Hospital in Texarkana and

(1) Voted its appreciation for the entertainment and arrangements for the meeting which had been made by Dr. Karlton Kemp and the Miller-Bowie County Medical Society;
(2) Adopted and ordered sent to the various branches of State Government, a resolution that the Arkansas State Board of Health should be recognized as the only authority for licensure of nursing homes in the State;
(3) Voted to endorse legislation establishing a voluntary health insurance plan for federal employees;
(4) Voted to accept modifications in the Medicare Contract having to do with blood transfusions;
(5) Approved the By-Laws for the Medical Education Foundation for Arkansas and elected the physician members of the Board of Trustees. The newly appointed board members were requested to select four laymen to complete the board;
(6) Appointed a fee schedule committee to make a study of fees for Medicare, Vocational Rehabilitation, Blue Cross-Blue Shield, Veterans Administration, and Blue Cross-Blue Shield for the aged;
(7) Approved society participation in a Southwest Hospitality Room for the A.M.A. Dallas meeting in December;
(8) Requested Dr. Jack Kennedy to attend the National Conference on Physicians and Schools in Highland Park, Illinois;
(9) Voted to appoint a committee to work with the Legislative Council of the Arkansas Assembly on problems of the Medical Center;
(10) Upon the request of the Blue Cross-Blue Shield Board of Trustees for a three-man committee to study over-utilization of Blue Cross-Blue Shield, the Council voted to refer the problem to the Society's Committee on Liaison with Blue Cross-Blue Shield;
(11) Voted to extend the VA contract for three months only.

The Council met on October 18th in the Hotel Marion in Little Rock and

(1) Voted to amalgamate the Medical Education Committee with the special committee headed by Dr. Autry which was appointed to study and assist the Medical Center and accepted with regret Dr. Autry's resignation from the committee;
(2) Voted to publish in the Journal of the Arkansas Medical Society a talk made by Mr. Jack Shelton, Chairman of the Public

Health Committee of the Legislative Council;
(3) Commended Dr. Charles Reid for his efforts to inform the Council on the activities of Arkansas Blue Cross-Blue Shield;
(4) Voted to continue the Medicare contract;
(5) Adopted the position that the VA Schedule be brought up to the Medicare level or that the contract be discontinued;
(6) Directed that submitted Blue Shield plans for medical payments be refused;
(7) Directed that Blue Shield service-type contracts not be accepted at this time;
(8) Voted that a thorough study of Vocational Rehabilitation be made before agreeing to any contract with that agency;
(9) Requested the Blue Cross-Blue Shield to submit further insurance programs for care of the aged;
(10) Voted to refer all complaints by insurance companies against physicians to the Professional Relations Committee for the district concerned;
(11) Agreed to pay 60 per cent of the legal cost incurred by the Washington County Medical Society as shown on invoice dated September 8, 1959.

By mail vote January 26th, the Executive Committee voted to pay Dr. L. E. Drewery's Expenses to the New Orleans Conference on Aging and adopted a resolution opposing Forand-type legislation.

The Council met February 14th at the Marion Hotel in Little Rock and

(1) Directed that all material to be considered at future Council meetings be reproduced and sent to each member of the Council at least one week in advance of the meeting;
(2) Elected C. C. Long as chairman of the combined committees on Medical Education and the Medical Center to succeed Dr. Autry, resigned;
(3) Delegated authority to the Advisory Committee to the Medical Assistants to decide on a question concerning their constitution;
(4) Voted to request the Executive Committee to decide whether or not to have a breakfast for Arkansas Congressmen in Washington;
(5) Approved travel expenses for L. E. Drewery to attend the New Orleans Conference on Aging;
(6) Gave a standing ovation to Dr. Fount Richardson as president of the American Academy of General Practice;
(7) Voted to invite all medical members of the Blue Cross-Blue Shield Board of Trustees to future Council meetings;
(8) Referred a proposal for over-age-sixty-five insurance back to the committee for the development of a better surgical schedule;
(9) Approved a proposed new Medicare contract with the exception of the Radiology Section fee schedule;
(10) Approved the 1960 budget as submitted by the Budget Committee to be published in the March Journal;
(11) Voted to furnish an automobile for the use of the Executive Secretary;
(12) Approved for reference to the House, Dr. Kolb's request that Arkansas give a breakfast for all delegates and officers of the AMA at all future June meetings of the AMA;
(13) Approved for reference to the House, a proposal that State Medical Society dues be raised $5 to be earmarked for the Medical Education Foundation for Arkansas;
(14) Approved the Cancer Control Committee's stand opposing a mass Public Health Service cytological survey in Arkansas;
(15) Voted to ask the Negotiating Committee to negotiate with the Veterans Administration to bring the fee schedule up to the Medicare Fee Schedule;
(16) Approved the nominations of Dr. C. A. Hesterly and Dr. Richard M. Logue to the Professional Relations Committees of the Sixth and Eighth Councilor Districts respectively;
(17) Approved the Society attorney's travel expenses to a meeting of medical society attorneys and executive secretaries in Chicago;
(18) Referred a suggestion for selecting the physician most active in community affairs to the Public Relations Committee;
(19) Agreed to sponsor a hypnosis seminar as proposed by the president-elect;
(20) Nominated Dr. Frank Vinsonhaler for POSTGRADUATE MEDICINE'S selection as the outstanding men in the history of Arkansas medicine.

EXECUTIVE SECRETARY'S REPORT

Mr. Paul C. Schaefer

Legislative activities, both nationally and in Arkansas, are absorbing increasing amounts of Society funds, members' efforts and Society headquarter's time. The problem of insurance for low-income people over 65 years old was by itself reponsible for many committee meetings, numerous public speeches and considerable travel during the past year.

The Medicare program continues to change almost daily, requiring the close attention of everyone connected with its operations.

The A.M.A.'s vastly increased program of field work against Forand-type legislation and its dependence on State Society headquarters for information and assistance to the national organization's representatives are noticeable additions to the Executive Secretary's duties.

During recent years accumulating responsibilities of the Executive Secretary have made it necessary to shift more and more supervisory and administrative duties to Miss Leah Richmond who has been with the Society in a secretarial capacity since 1952. It has recently become apparent that a reassignment of duties within the headquarters was indicated. Accordingly, a reorganization has been accomplished, Miss Richmond having been promoted to Administrative Assistant, a title in keeping with responsibilities already accepted and in the process of being transferred to her. A stenographer in the Medicare Department has been assigned

part of Miss Richmond's secretarial duties to allow her time for her administrative responsibilities. Part of the stenographer's time, formerly charged one hundred per cent to Medicare, will now be charged to Arkansas Medical Society. It is believed that this reorganization is another forward step, improving office efficiency and making it possible for the headquarters to shoulder the Society's expanding program without employing additional personnel.

The Society's budget continues to grow with our increased activities and the national inflation. Careful attention by the Council, the Budget Committee and the headquarters to expenses and to opportunities to increase income have kept Society expenses below its income. In 1959, Journal advertising alone accounted for 42 percent of Society income. This item, plus other earned income, is primarily responsible for the fact that only one small dues increase has been necessary since 1951 even though the Society's budget has increased 300 percent in the same period.

Society membership remains about the same. On December 31, 1959, there were 1,161 dues-paying members, 52 affiliate and 47 life members.

With the continued guidance and assistance of the Councilors, officers and committees, we look forward to another active, successful and rewarding year for the Arkansas Medical Society.

REPORT OF THE ARKANSAS STATE MEDICAL BOARD

Joe Verser, Secretary

The Secretary of the Arkansas State Medical Board makes the following report of the activities of this Board since the last meeting of the Arkansas Medical Society:

The Officers and Members are as follows:
Garland D. Murphy, Jr., M. D., Chairman
Wm. A. Snodgrass, Jr., M. D., Vice-Chairman
Joe Verser, M. D., Secretary and Treasurer
H. J. Hall, M. D.
Frank M. Burton, M. D.
Jeff Baggett, M. D.
Hugh R. Edwards, M. D.
Earle D. McKelvey, M. D.
Mr. Eugene R. Warren, Attorney

The Board investigated every case of violation of the Medical Practice Act reported to the secretary during the year. One court conviction was obtained and five cases are now pending. Nine injunctions were issued.

The Board revoked the license of one physician because of gross and negligent malpractice.

Act 141, defining and regulating the Practice of Physical Therapy, provides that the Board shall administer the provisions of this Act. Since its passage last year, the Board has issued several injunctions against persons illegally practicing Physical Therapy.

A yearly financial report of the Board's activities, as prepared by Winter, Johnston & Company, Certified Public Accountant, was sent to and approved by the Council of the Arkansas Medical Society and published in the Journal.

Following is a report of the Board's proceedings from February 1, 1959 to February 1, 1960:

Physicians registered for 1960:	
Resident	1,268
Non-Resident	598
Physicians licensed by examination	99
Physicians licensed by reciprocity	28
Physicians certified to other states	71
Licenses revoked for non-payment of annual registration fee	29
Licenses suspended for non-payment of annual registration fee	57
Court convictions obtained	1
Cases pending	5
Injunctions issued	9
Licenses revoked	1

Following is a financial report covering the period February 1, 1959 to February 1, 1960. A yearly audit will be made in June, 1960.

Cash balance in bank—		
February 1, 1959	$14,581.35	
Time Deposits	8,398.46	$22,979.81

RECEIPTS

Registration Fees	5,902.00	
Certification Fees	1,015.00	
Reciprocity Fees	3,400.00	
Primary Examination Fees	1,800.00	
Final Examination Fees	1,462.50	
Four-year Examination Fees	750.00	
Duplicate Certificates	15.00	
Directory Sales	208.00	
Physical Therapy Fees and Dues	357.00	
Temporary Permits	125.00	
Miscellaneous	70.00	
Interest on Time deposits	241.95	15,346.45
Total Cash Available		$38,326.26

DISBURSEMENTS

Salaries, FICA tax, fees and expenses of Board Members	8,753.77	
Attorney's fee, expense and investigations	3,195.89	
Dues and expenses to Federation of State Boards of U. S.	800.00	
Office rent, supplies, printing, telephone, postage, etc.	2,308.03	
Refund of fees	120.00	
CPA Audit	175.00	
Physical Therapy expense— printing, refund of fees, etc.	291.83	
Miscellaneous — returned checks, renewal bond, safety deposit box rent, etc.	192.60	15,837.12
Cash balance in bank— February 1, 1960	8,541.73	
Time Deposits	13,640.41	
Cash on hand	307.00	
		$38,326.26

ANNUAL REPORT TO THE ARKANSAS MEDICAL SOCIETY FROM ARKANSAS STATE BOARD OF HEALTH

John T. Herron, State Health Officer

Vital Statistics

A total of 41,559 births were recorded in the calendar year of 1958, representing a rate of 23.2 per 1,000 population. 17,017 deaths were recorded showing a death rate of 9.5 per 1,000 population. Also, a total of 638 fetal deaths were recorded.

The Ten Principal causes of death for 1958 were as follows:

Cause of Death	Total	Rate per 100,000 Pop.
1. Heart disease (all forms)	6,199	346.5
2. Neoplasm (cancer)	2,388	133.5
3. Vascular lesions affecting central nervous system (strokes)	2,256	126.1
4. Accidents (all forms)	1,175	65.7
5. Influenza & pneumonia	672	37.6
6. Nephritis & nephrosis	285	15.9
7. Birth injury, asphyxia, and infection of newborn	265	14.8
8. Diabetes mellitus	223	12.5
9. Diseases of peritoneum and intestines	214	12.0
10. Immaturity (prematurity)	204	11.4

All certificates of birth, death, stillbirth, marriage, and divorce are bound in volumes, indexed, and tabulated. Microfilm copies of all certificates of birth, death, and stillbirth, photostatic copies of all certificates of birth, death, and stillbirth which occurred within the State but of legal residence outside the State, and 10 percent sample of all deaths are mailed to the National Office of Vital Statistics, Washington, D. C.

All deaths are coded as to primary statistical cause according to the rules of the **Manual of Joint Causes of Death** as set forth in the **International Statistical Classification of Diseases, Injuries, and Causes of Death.**

There were 8,199 delayed birth certificates and 11,805 prior to 1914 certificates of birth placed on file during the year 1958.

15,545 marriages and 4,948 divorce decree records were filed in the year 1958. This is a ratio of 3.1 marriages to one divorce.

A total of 1,007 adoptions were processed during the year 1958.

Hospitals

During 1959 the Division of Hospitals licensed 144 hospitals and 84 nursing homes. Several of these were new hospitals and nursing homes. Privately financed additions were constructed to 12 nursing homes in the State, adding a total of 165 beds. Five new privately financed nursing homes are under construction, and several more are in the planning stage. Additions to 5 existing homes are also under construction.

Considerable progress has been made in obtaining compliance with the Licensing Law and Standards for Nursing Homes.

The annual revision of the "State Plan for the Construction of Hospitals and Related Facilities" was made as required under the Federal (Hill-Burton) Hospital Construction Program.

Under the Hill-Burton Program 2 hospital projects and 1 nursing home project were completed during the year. Construction is underway at this time on 5 projects, and plans are being prepared on 5 others. Five hospitals totaling fifty beds have been completed with local funds. Three other privately financed hospitals are under construction, and 3 locally financed additions to hospitals are under construction.

Plans and specifications for all hospital and nursing home construction in the State are reviewed and approved by the Division. Other services provided by Division personnel include inspection of all hospital and nursing home construction and routine inspections of hospitals, nursing homes, and buildings which are proposed to be used as nursing homes.

Public Health Education

A full-time Director was appointed to the Division of Public Health Education during 1959. This makes two qualified health educators in this Division to carry out the professional activities.

Much of the work of this Division continues to involve the procurement, organization, and utilization of health education materials. The distribution of health literature through local health departments was coordinated by this Division. This literature comprised 275 titles, with a wide range of subjects. The film library distributed health films for use by groups and organizations throughout the State. The library contains over 1,100 prints which represent approximately 900 titles. During 1959 the Division of Public Health Education shipped 6,114 films to users. This was an increase of 339 over the previous year.

In addition to their work with the public at large, the personnel of this Division continued to work with other Divisions and local health department employees on the health education aspects of their programs. With the addition of a full-time Director and the availability of a regional health education consultant from the Public Health Service, this Division plans to develop and carry on additional health education activities directly with the public.

Local Health Services

The lack of adequate finances to support local public health programs and direct services offered by the State Health Department has become critical. Without additional funds from either local, state, or federal sources, further expansion of an ever growing program with many needed additional services is not possible. It is very likely that existing programs and services will, through necessity, have to be curtailed in proportion to our ability to pay.

Our salaries are too low to attract qualified professional workers in preventive medicine. We are losing some of our trained full-time professional workers because of higher paying opportunities in other fields. The total number of such workers now on duty is far below adequate and is only approximately 50 percent of the number needed to render minimal adequate services. The rural areas of the State are suffering from a shortage of personnel more than urban areas. The rural areas of the

State still have only one public health nurse per 20,000 population; at least one public health nurse per 6,000 population is needed. Urban areas have one public health nurse per 13,000 population. At present we have only six full-time medical directors and two part-time, when at least twenty full-time physicians are needed. We have thirty-four full-time local sanitarians, and fifty are needed.

Advances in environmental sanitation, new medical discoveries, and new immunization and case finding techniques have contributed materially in improving public health, extending our life span, and decreasing death rates. Our population realizes and appreciates this improvement in total health. This causes our public to demand improved and expanded health services, but as yet they do not make their wishes and needs forcibly known to local appropriating bodies, the State General Assembly, or to Congress to provide the additional needed funds.

We are encouraged by the fact that local communities, counties, and cities are beginning to realize that the improvement and protection of the health of the public is a local legal and moral responsibility. Local units of government are also providing improved housing facilities for local health units. This trend seems to be spreading on a Statewide basis.

Communicable Disease Control

Unfortunately the incidence of polio and polio-like disease in 1959 was greater than for several years. Tabulation of cases by vaccination status revealed that of the 230 paralytic cases recorded, 140 were in children under five years of age, and 51 were in the five to nine age group. The dismaying thing about the figures is that 87.9 percent of these paralytic cases under five were either not vaccinated or had received less than the three doses which are recommended; 76.5 percent of the five to nine age group were not vaccinated or were incompletely vaccinated. The polio problem is now in the unvaccinated young child. A higher rate of paralytic polio was experienced in the Negro population than had ever occurred before. Pulaski County, with its 58 paralytic cases, was adjudged an epidemic area by the Public Health Service. Despite the number of cases in the Little Rock and North Little Rock areas, no concentration of cases occurred in either city.

At this time there is no provision for furnishing polio vaccine through the State Health Department. This is regrettable, since all surveys made have definitely indicated that the low socio-economic groups have received the least polio protection at all age levels.

A preliminary report is made here, especially to the cooperating physicians and hospitals, of the results of the studies on virus isolation from fecal specimens of patients.

	Paralytic	Nonparalytic	Total
Total cases tabulated, 1959	230	75	305
Number patients on whom feces specimens were submitted	196	62	258
Number having polio type I virus isolated	112	17	129
Number having polio type III virus isolated	1	0	1
Number having Coxsackie B5 virus isolated	1	0	1
Number having an unidentified virus isolated	2	1	3
Number on whom laboratory reports not reported	22	10	32
Number having no virus isolated from feces	58	34	92
Number having no specimens submitted	26	12	38
No information regarding specimens	8	1	9

Purely coincidental, no doubt, but these figures reveal a 66 2/3 percent isolation of virus from the paralytic cases as against 33 1/3 percent isolation of virus from the nonparalytic cases.

Space does not permit of full discussion, but the chronic typhoid carrier register now contains 166 names — six newly discovered carriers having been added in 1959.

The program which pertains to Veterinary Public Health activities involves the diseases of animals transmissible to man. Such diseases are quite numerous in Arkansas, but the one with the highest incidence in 1959 was animal rabies. This disease, which is very infectious for man, presented a decided increase in animals even though control measures were greatly increased. Other diseases in this field were investigated and reported as the necessity required.

Active liaison was maintained with the State Civil Defense Department in regard to civil defense requirements.

Tuberculosis Control

During the year 1959, the Division of Tuberculosis Control directed the public health supervision of known tuberculosis, intensifying this supervision toward the 5,594 known active and probably active cases. A total of 904 new cases were reported during the year; this is a morbidity rate of 47 per hundred thousand, and represents a 4 percent decline. Although these decreases are less than those observed nationally in the past few years, they are both substantially higher than in Arkansas in 1958, when the death rate declined only 1.8 per cent and the morbidity rate climbed slightly.

We feel that in large measure this progress is due to an increased interest in tuberculosis control locally and to an increasing number of private physicians who are assuming the responsibilities for care of tuberculosis patients at home. As an aid to this local emphasis, twelve counties are now operating chest clinics. These are under sponsorship of various agencies, and this Division gives assistance as requested.

Act 85 of the 1959 Legislature has caused activities of the mobile X-ray units during this year to be directed toward those larger counties having 25 or more hospitalized patients. Limitation of funds and personnel has precluded any additional surveys.

To supplement these case-finding activities, there has been growing interest in the techniques of intradermal tuberculin testing. At the request of the local medical societies, public health personnel in twenty-two counties have been

instructed in these techniques and authorized to administer the tests.

Venereal Disease Control

Venereal disease morbidity reporting continued its upward trend in 1959, with primary and secondary syphilis showing a 25 percent increase over 1958, and gonorrhea showing a similar increase. Infectious syphilis among teenagers also continued to increase. These increases become even more significant when compared with 1954, the year of Arkansas's lowest venereal disease morbidity since World War II. This comparison shows a 333 percent increase in primary and secondary syphilis and 310 percent increase in gonorrhea.

The division rendered medical consultation services to private physicians, hospitals, and military installations. Direct services and consultation were also rendered to local health departments. Educational films, literature, and lectures were also furnished upon request to interested professional and non-professional groups.

The lack of diagnostic and treatment services available to medically indigent persons continues to be a serious handicap to effective venereal disease control.

Maternal and Child Health

During the fiscal year ending June 30, 1959, 3,499 maternity patients were served by public health nurses either by home or office nursing visits, averaging two visits each, and 182 others were enrolled in maternity classes taught by public health nurses. Maternity clinics conducted by local physicians assisted by public health nurses served 3,287 patients with an average of three visits each. Many of these patients were delivered by 357 midwives, who attended 3,920 births in all, or 9 percent of the total live births in the State. This constituted the smallest number of active midwives and the smallest number and percentage of live births attended by midwives on record for Arkansas.

A total of 21,899 infants and preschool children received public health nursing care, including 453 premature infants. Well-child medical supervision was provided 5,169 children in well-child conferences. Approximately 5,700 school-age children had physical examinations by a physician, either in well-child conferences or by a health department physician, with an additional 8,500 receiving public health nursing services. Public health nurses had 7,064 conferences with teachers, 4,716 on matters relating to individual pupils, 2,348 relative to other school problems. Hearing screening tests supervised by the State Health Department were given 64,096 children in fifty-two counties, with 1,600 children referred for medical attention, while 72,738 had vision screening tests in fifty-nine counties, with 5,369 referred for medical attention. More than 1,000 children were included in diet surveys.

The State Health Department had the major responsibility for the organization of four workshops concerned with Child Health — a school health workshop for Negro teachers, a dental health conference, a home-school-farm safety workshop, and a workshop on developing and coordinating mental health services.

The Arkansas Child Development Center, the State Health Department's evaluation and counseling service for children thought to be mentally retarded, gave evaluations to 247 children in 1959. Since August 1958, only children under 7 years of age, except for a very few older children with special problems, have been seen. Public health nursing service was given to 644 mentally retarded children during the year.

At the Hearing and Speech Center, operated by the Department in cooperation with the Arkansas Children's Hospital and which provides hearing and speech evaluations and therapy, and auditory training, more than 200 children had hearing or speech evaluations, and more than two thousand half-hour speech therapy sessions were given.

Heart Disease Control

Community services, public education, and physician education in heart disease and heart disease control are improving on a Statewide basis. This improvement has been brought about through the combined efforts and close cooperation among this Division, the Arkansas Heart Association, the Department of Cardiology of the University of Arkansas School of Medicine, local medical societies, and many interested civic organizations. As scientific progress is made in diagnosis, surgical procedures, treatment, and preventive procedures in heart disease and congenital heart conditions and contributing factors, the public becomes more interested in supporting heart disease research and the development of advanced preventive techniques. This increased interest is also demonstrated by the fact that requests by civic clubs and professional groups for speakers on the subject of heart disease are increasing.

At present there are two diagnostic and treatment heart clinics within the State. The patients seen in these clinics are usually medically indigent cases and referred to the clinic by a physician or a local health unit. During the past year 1,171 individuals suffering with heart disease or heart abnormalities were examined and treated in these clinics, while 6,940 electrocardiograms on these cases and some 9,000 referred suspects were completed. Approximately 525 other complicated and time consuming tests and studies were also completed.

The Arkansas Heart Association and this Department, along with the University of Arkansas School of Medicine, support these clinics. In addition this Department continues to support, in part, from federal grant-in-aid funds allocated to the State for heart disease control, the cardiac teaching clinic at the University of Arkansas School of Medicine.

The Division continues to provide films, pamphlets, and other approved educational materials to authorized agencies, organizations, and individuals on request.

Mental Health

During the year this Division continued to aid in the support of the adult and child psychiatry clinics located at the University of Arkansas School of Medicine. There was a total of 931 patients seen by them during the year.

Because local public health nurses devote part

of their time to mental health activities, some funds were allocated from the grant-in-aid funds to aid in support of local health units.

A five-day workshop on mental health was held at Petit Jean State Park in June of 1959. Ninety persons representing state and local agencies involved in mental health attended this workshop. Their response was enthusiastic, and it is hoped that this can be repeated in the future because of its value not only in education, but also in obtaining better coordination of activities between agencies.

Public education in the field of mental health continues to be a major activity, and an excellent film library, as well as a considerable amount of literature, is available for distribution and use by the lay and professional public.

The local communities have shown an increase of interest in the area of mental health. Two communities are interested in establishing a mental health clinic. The Arkansas Mental Health Association, which is a lay group devoted to strengthening mental health programs, now has five local chapters. School PTA's and home demonstration clubs have shown considerable interest in mental health problems affecting their community.

The Division of Mental Health employed a clinical psychologist on July 1, 1959. He will be the first full-time employee in this Division, and it is planned that his activities will include consultation to other agencies and lay groups to aid in meeting the problems which exist in their community. It is hoped that this Division can be strengthened next year by the addition of a psychiatric social worker and a psychiatric nurse.

At the present time, the only money available for the operation of this division is the grant-in-aid funds. This will necessarily restrict the activities possible for this division. Also, since the grant-in-aid funds have to be matched by State funds, we will continue to be forced to use them in agencies where state tax money is allocated. One of the desperate needs for the local community is for clinics which would provide diagnostic evaluations and treatment for individuals with emotional problems. Many rural communities could not afford to entirely support such a clinic. Most states have met this problem by providing state money on a matching basis, thus making it possible for clinics to be set up on a regional basis rather than to be located only in large towns.

Public Health Nursing

The Division of Public Health Nursing works with the other Divisions in planning for the activities of their program and in supervising the local nurses in carrying out these activities.

The number of nurses employed by the State Department of Health has decreased by 5 in the past calendar year. There are now 117 nurses employed in the following positions: Central Office — 1 director, 2 generalized consultants, and 1 consultant with the program of mental retardation. Field personnel — 5 supervisors, 1 senior public health nurse, and 107 staff nurses.

Public health nursing service has been extended to three additional counties leaving thirteen counties without nursing service. Three counties added a second nurse position. However, there are still forty counties with only one public health nurse.

The supervisory staff increased their visits to local public health nurses from 389 to 527. They attended a three-day workshop for the Home Care of the Mentally Retarded Child. After attending a one and one-half day workshop on intradermal tuberculin testing, the supervisors assisted the Director of the Division of Tuberculosis Control in holding a series of workshops for the staff nurses throughout the state on intradermal testing.

The in-service program was continued with four in-service conferences of one day each held in nine areas. This made it possible for all of the nurses in the State to attend the conference.

The local supervisors met with the nurses in areas in group conferences several times during the year. Changes in policies, programs, and ways of improving their service to the community were discussed in these group meetings.

Dental Health

The Division of Dental Health has concerned itself over the past several years more with problems of health education in the communities and schools of the State than with other facets of dental public health. Because of a significant lack of funds, it has not been able to enter into areas of actual dental health care. The Division was fortunate to have as administrator a young dental graduate who, after a year, has returned to private practice. However, it is anticipated that a seasoned dental director from out of state will take over by April of 1960.

In the meanwhile, the Division, together with the officially appointed dental health consultants (private practitioners) over the State, has helped to maintain attitudes of interest in dental health at a time when interest in dental health throughout the State seems to be at its high point. As a result of the 3rd Biennial Dental Health Conference, in June 1959, a closer liaison has been established between community groups consisting of public health nurses, school teachers, dentists, and Parent-Teacher groups. Now working as teams, these groups are making contributions to dental health education that promise far reaching effects.

Of interest to the medical profession is the fact that the dental section of the Arkansas Children's Hospital has recently been fully accredited by the Council on Hospital Dental Service of the American Dental Association. This is the first non-federal dental department to be thus accredited in the State of Arkansas.

Sanitary Engineering

The Bureau of Sanitary Engineering will summarize its report under its various Divisions and activities.

Water

Water supply is now available through the 230 public water supplies to approximately 47 percent of the population of our State. Periodic inspections have been made of each of these water supplies by the sanitary engineers of this Division to collect water samples for chemical and bacteriological examinations, check the treatment

processes, aid in training the operators when necessary, inspect improvements under construction, and assure good water works practice.

New waterworks systems were constructed this year at Leslie, Plumerville, Perryville, Pangburn, Imboden, McRae, and Weiner; also, major improvements were made to 147 existing waterworks systems at an approximate cost of $4,500,000.

Engineering plans for proposed water and sewerage improvements and swimming pools submitted to the State for approval, in accordance with the State laws and regulations, reached an all-time high of 422 sets. The necessary time required for the review of these plans for approval has reduced the amount of time the engineers have for essential field inspection service to the extent both water and sewerage operation is beginning to show signs of neglect.

The statistical data in Table 1, when compared to that for previous years, are an indication of progress in the number of water supplies as well as improved treatment processes.

TABLE 1
ARKANSAS PUBLIC WATER SUPPLIES

Statistical Data
1959

	Number
Public Water Systems	230
Municipally Owned Public Water Systems	202
Privately Owned Public Water Systems	28
Public Water Supplies from Wells	172
Public Water Supplies from Springs	10
Public Water Supplies Receiving Some Type Treatment	181
Public Water Supplies Receiving Chlorine Treatment	162
Public Water Supplies Receiving Filtration	90
Public Water Supplies Treated for Iron Removal	50
Public Water Supplies Treated for Softening	11
Public Water Supplies with 1.0 ppm Fluoride	32
Population Served by Public Water Supplies	875,000

Inspections for certification are provided for all water supplies serving interstate carriers and supplies being used by poultry processing plants where interstate shipment of produce is involved.

Sewerage

A record number (211) of plans were reviewed and approved for sewerage improvements, and the approximate cost of the improvements under construction or under contract during this fiscal year was approximately $10,500,000.

New sewerage systems and treatment plants were completed at Huttig and Pangburn. Other new plants or major additions to existing plants were either completed or under construction at Little Rock, Benton, Springdale, Jonesboro, Weiner, Fayetteville, Holly Grove, McGehee, State Hospital (Benton), Siloam Springs, Gillett, Junction City, and Warren.

Sewer extensions to several unsewered areas and treatment plants constructed during this period will relieve many health hazards and greatly reduce the municipal sewage pollution of our streams. However, regular inspections will be required to insure operating the treatment works at their maximum efficiency in order to keep municipal sewage pollution to a minimum.

Swimming Pools

Plans were reviewed and approved for 21 new pools constructed this year. Most of these pools were for motels and country clubs. This makes a total of 143 swimming pools under the inspection of this Division.

Plumbing

Routine activity for this year included inspections, licensing, investigations, education, and promotion of local plumbing programs, all of which have shown steady but slow progress.

The Division has continued a public information program, speaking before civic clubs and other groups. Inspection reports of a cross section of the State indicate the high quality of plumbing installations has been maintained. The annual Plumbing Conference and Short School was continued and was very successful.

Although progress has been made, the Division has operated under a very serious shortage of personnel in the field staff. It has been impossible to maintain our previous degree of service to our local authorities.

The Division operated with a staff of three field inspectors to cover the State. A very minimum program would require a field staff of at least six field inspectors. This is impossible on the present level of our income.

Dairy Products

The Division of Dairy Products was established by Act 114 of 1941. It is charged with the administration of all laws and regulations pertaining to the production, processing, manufacturing, and distribution of dairy products other than fluid milk.

Sanitary inspections, laboratory analyses, issuance of licenses, seizures, embargoes, destruction of milk or cream to prevent distribution of unsatisfactory products, certification of minimum standards, and quality of dairy products for interstate shipment are some of the activities of the Division.

A total of 1,183 sanitary inspections of dairy product establishments have been made, 846 licenses issued, 34 days spent with local sanitarians, 5,391 cans of milk sediment-tested, 353 cans, or 19,784 pounds, of milk rejected because of water, 173 butterfat tests of milk. Several quality and association meetings were attended.

Our program has grown until it is more than our present staff can serve. A minimum program for the coming year would require a minimum of three field inspectors with sufficient travel funds to keep them in the field. Under these circumstances we cannot hope to maintain an adequate program during the coming year.

Food, Drug, and Milk

As a result of drug investigations made by personnel of this Division, 24 individuals were prosecuted for violating the State food and drug laws. Several physicians have been reprimanded for carelessly prescribing narcotics or dangerous drugs, and the narcotic license of one physician was revoked. Several druggists were reprimanded for over-the-counter sale of prescription

drugs and other violations of the State Food, Drug and Narcotic Acts.

In cooperation with Mr. Eugene Warren, legal advisor for the Arkansas Medical Association, several non-medical individuals have been enjoined by the Courts for violating the Arkansas Medical Practice Act.

Much time has been devoted to salvage operations and the supervision of the destruction of foods, drugs, and cosmetics unfit for resale or for human consumption. During the past year approximately 272,558 pounds of foods, drugs, and cosmetics have been destroyed under our supervision.

Visits were made to the various milk sheds of the State in attempting to create interest in establishing milk laboratories for the certification of milk. Our central laboratory made 295 tests on 123 milk samples. This represents a considerable decrease in work compared with the previous year. The fluid milk program needs a full-time bacteriologist, not only for our laboratory certification program, but for the many problems which arise daily involving bacteria, antibiotics, etc., of our own milk supply as well as the milk we are receiving from other states.

Four public talks pertaining to foods, drugs, and milk were made by personnel of this Division. Three food service schools were conducted during the year. Sixteen major conferences were held with various groups to discuss labeling and food processing. Three persons from this Division attended a five-day training program in Atlanta, Georgia, sponsored by the Public Health Service. One food poisoning outbreak involving fifteen people was investigated.

State Hygienic Laboratory

During the past year 680 brains of animals were received for rabies examination. Of the 654 which were satisfactory for examination, 16 percent showed positive evidence of rabies.

There was an increase in the number of isolations of Salmonella, Shigella, and C. diphtheriae. The latter were predominately of the virulent mitis type. Over 8,000 sputums were examined for presence of tubercle bacilli, and approximately 10 percent gave positive findings.

The reactivity rate of the premarital blood tests for syphilis rose slightly. Of the 36,861 test reports on file in the laboratory, there were 660 which were reactive (1.8 percent) and 795 which were weakly reactive (2.2 percent).

In all divisions, 359,183 examinations were made on 210,285 specimens (up 5 percent).

Water Pollution Control

The Commission issued thirty permits for waste disposal facilities:

13 for oil field brine injection systems;
9 for industrial waste treatment plants;
8 for municipal waste treatment plants.

Ten municipalities received $322,829.11 in Federal funds for sewage treatment works construction under Public Law 660 which is administered by the Commission.

One drainage basin survey covering 130 square miles was completed, and two basin surveys covering 3,400 square miles were initiated. The staff collected 730 samples and performed 6,050 chemical and biological analyses.

Three public hearings were held, and seven abatement orders were issued:

3 orders to oil field operators;
3 orders to municipalities;
1 order to an industry.

MEDICINE IN THE NEWS

In January, a North Little Rock Negro, John Richmonds was convicted in Municipal Court, principally on circumstantial evidence after being charged with the illegal practice of medicine. Richmonds was arrested after a "patient" of his said "he treated me for spells I didn't know I had until somebody told me." Richmonds said he had a concoction for persons beset with spells or fits—"where they fall down and go to hollering." For such suffers, he suggested a mixture containing bits of "Little John Chew herb" asafetida, camphor gum and gin. The gin he said, draws the juices from the herb.

Richmonds disclaims he charged a fee for his services, "I take whatever they want to give me", he said. "Sometimes it's $2 or $3. (Taken from the Arkansas Democrat).

Cancer Now Rates as 2nd Leading Killer in State

How serious a threat does cancer present to the health of Arkansas citizens?

Statistics show that during 1959 about 1,500 new cancers were detected in Arkansans—a rate of 125 per 100,000 population. This grim picture serves to illustrate remarks by two specialists recently who asserted, "We need more cancer prevention in Arkansas."

A film, sponsored by the Pulaski County unit of the American Cancer Society was shown in January explaining how the second leading cancer killer among women, uterine cancer, can be virtually wiped out with the aid of a simple detection examination. The leading cancer killer—breast cancer — also was shown in conjunction with the first film. No admission was charged and the showings were for women only.

* * *

Representative Alford began his second year in Congress in January with thoughts of introducing bills in the fields of voluntary health insurance and taxation.

Dr. Alford said he had under study a proposal to set up a voluntary insurance program which may include some form of tax deduction for the participants. He said the program was particularly intended for persons 65 and over but he might decide to make it available to persons of all ages.

* * *

Despite availability of Vaccine, during the calender year of 1959, Arkansas had the highest paralytic attack of polio of any style in the nation according to reports from the National Foundation.

FROM: Association Newsletter, Jan. 1960

A dues increase of $100 a year, all for education, has been approved by 22 state osteopathic associations. The latest to do so, Oklahoma, raised members' payments from $50 to $150 annually. Other recent converts to the support-through-dues program for osteopathic education include the Missouri, Kansas and Michigan associations. The $100 per member goes to the Osteopathic Progress Fund of the American Osteopathic Association. The idea was started five years ago in California.

Resolution From the Arkansas Farm Bureau Federation

The following is a resolution adopted by the official voting delegates at the 1959 Farm Bureau Convention November 24; "We favor the continuation and enforcement of the county quota basis for admissions to the University of Arkansas Medical Center. We request that sufficient funds be made available to adequately finance the Medical Center's operation in a manner most beneficial to the entire State."

CHICAGO—Dr. John Paul North, Dallas, Texas, will become the Director of the American College of Surgeons, effective January 31, 1961, it was announced by Dr. I. S. Ravdin, Chairman, Board of Regents, American College of Surgeons. He will succeed Dr. Paul R. Hawley, the College's Director since March, 1950.

Physical Examinations for Doctors

The Arkansas Academy of General Practice in conjunction with the Arkansas Tuberculosis Association and the Arkansas Heart Association is sponsoring again this year at Pine Bluff the "Yearly PE for EVERY MD" Booth.

Arkansas Medical Society members will want to avail themselves of the examination facilities available at the Pines Hotel on the same floor as the general meeting. Some of the facilities available are: Glaucoma, Lower Case Detection; Blood Pressure Examination; Electrocardiograms; Chest X-ray; Urinalysis; Routine Blood Examination; Serum Cholesterol; Blood Sugar; and Rectal Examinations. Reports will be written to the individual MD, results being available in approximately three weeks.

JOINT BLOOD COUNCIL TO PUBLISH DIRECTORY OF BLOOD TRANSFUSION SERVICES

Informational material and specific data for 1959 are now being gathered from all hospitals and blood banks in the United States and territories by the Joint Blood Council. The information will be published in a new directory of Blood Transfusion Facilities and Services and issued by early spring.

The first directory produced by the Council covered the year 1956 and included 2202 facilities which collect, process, distribute or use whole blood.

Technical and operating procedures of blood banks and hospital transfusion services as well as sources and usage of blood are to be recorded. Also included will be approvals, supervision, reciprocity exchange systems and other services such as tissue storage banks. This information has been found to be useful to hospitals, blood banks, and medical libraries and to Federal medical agencies.

ANNOUNCEMENTS

The Fourth Post-Graduate Course on Fractures and Other Trauma, sponsored by the Chicago Committee on Trauma of the American College of Surgeons, will be held April 27 through April 30, 1960, at the John B. Murphy Memorial Auditorium, 50 East Erie Street, Chicago.

XIVth GENERAL ASSEMBLY

The German Medical Association, host of the XIVth General Assembly of The World Medical Association, scheduled to convene in West Berlin, September 15-22, 1960, has extended a cordial invitation to all the doctors of the world to attend this outstanding meeting.

Third International Congress of Physical Medicine

The Third International Congress of Physical Medicine will be held August 21-26, 1960 inclusive, at The Mayflower, Washington, D. C.

The preliminary prospectus covering the international conference carries in detail information on registration, application to present a paper, a scientific exhibit, a scientific film, etc. A copy of this preliminary program may be had on request by writing: Dorothea C. Augustin, Executive Secretary, Third International Congress of Physical Medicine, 30 N. Michigan Avenue, Chicago 2, Illinois.

* * *

The Eighth Congress of the Pan-Pacific Surgical Association will be held in Honolulu, Hawaii, September 27 through October 5 in 1960.

Answer to What Is Your Diagnosis?

This patient is a 9-year-old poorly nourished and chronically ill child who had had bleeding episodes for several years.

Urinalysis revealed RBC's too numerous to count, Hgb—8.5 gm. Bleeding time—3 minutes. Clotting time—one hour. Prothrombin time—13.7 minutes.

Films reveal osteoporosis of the bones about the knee. The epiphyses are slightly large due to the increased blood supply. There is subchondral bony erosion at the distal end of the femur. There is a homogenous radiopaque material representing iron deposits within the joint space.

Obituary

Dr. John G. Wilson, Mayor of Keo, died at a Little Rock hospital, December 8. He was admitted after suffering a fractured hip in a fall at his home. He was 92. A practicing physician for 52 years, Dr. Wilson came to Arkansas from Wichita, Kansas in 1919. He practiced at Ulm for 19 years before moving to Keo in 1938, where he practiced for 21 years.

He was a Methodist, a Mason and a member of the Order of Eastern Star.

Survivors include his widow, Mrs. Mae Skidmore Wilson; a daughter, Mrs. O. A. Reitz of Ulm and a brother, Clifford Wilson of Oakland, Calif., two grandchildren and a great-grandchild.

* * * * *

Dr. Francis Samuel Tarleton, 66, prominent Hot Springs physician and member of the St. Joseph's and Ouachita General hospital staff died after a lengthy illness, January 3, 1960. Dr. Tarleton was a retired eye, ear, nose and throat specialist and had resided in Hot Springs for the past 34 years.

Dr. Tarleton, who served in the Medical Corps during World War One, was a graduate of Spring Hill Academy, Spring Hill College at Mobile, Ala., and Tulane Medical School. He also did graduate work in St. Louis and New York.

He was a member of the Knights of Columbus, member and past president of Garland County Medical Society, member of the Arkansas and American Medical Societies, former member and chairman of the Good Shepherds board and past president of the Kiwanis Club. Dr. Tarleton was a member of the St. Johns Catholic Church and Catholics men's club.

He is survived by his wife, Mrs. Gladys Tarleton, Hot Springs, a son, F. S. Tarleton, Jr., Hot Springs, a daughter, Mrs. Murelle Watkins, Little Rock and three grandchildren.

* * * * *

Dr. Dewell Gann, Jr., 70, of Benton, who achieved prominence in the medical profession as his father had before him, died January 9 at his home after an illness of more than 20 years. Dr. Gann earned international recognition as a surgeon. A graduate of the University of Indiana Medical School, he was a fellow of the American College of Surgeons, the Royal College of Surgeons at Edinburgh, Scotland, the International College of Surgeons at Geneva, Switzerland, and the American Medical Association. In 1942 he was listed in the International Blue Book of Who's Who in the World.

Dr. Gann developed a resuscitator in the late 1930s for reviving strangulation victims of gas, smoke, or water. The invention was accorded a certificate of merit by the International College of Surgeons.

He had served on the faculty of the Medical School, was chief of staff at St. Vincent's Infirmary, transport surgeon for the Army during World War I, attending surgeon for Arkansas Baptist Hospital and Arkansas Children's Hospital and president of the state committee of the American Cancer Society.

Survivors include his wife, Mrs. Agnes Baum Gann.

Personal and News Items

The Officers, Regents and Governors of the American College of Physicians at the meeting in Philadelphia, Penn., on November 14, 1959, elected **Dr. Evison Ronald Riggall** as an Associate of the College.

Dr. and Mrs. James M. Kolb, of Clarksville, attended the clinical session of the American Medical Association at Dallas, Texas. Dr. Kolb, who is the state president of the Arkansas Medical Society, is the senior delegate from the state society.

Dr. Warren Terrell of Newport, was recently elected president of the Walker-Catoosa-Dade Medical Society, Ft. Oglethorpe, Georgia.

Dr. George W. Warren has moved into his modern new clinic on the corner of the El Dorado highway and 14th Street, Smackover, Ark. Open house was held January 10.

"Open house" was held Sunday, January 10, for the opening of **Dr. Charles Bailey's** new modern office building, Greenwood.

Dr. Henry G. Hollenberg of Little Rock, a surgeon, read a paper and participated in a symposium at a sectional meeting of the American College of Surgeons, January 21-23 at Louisville, Ky.

Dr. Robert Sherman, Fort Smith specialist in obstetrics and gynecology, was speaker at a meeting of Sebastian County Association for Retarded Children January 14th.

A new addition to West Memphis medical circles has been announced by **Dr. Glenn P. Schoettle,** local surgeon. Joining Dr. Schoettle in his offices is **Dr. Herbert Gene Lanford,** surgeon.

Governor Orval E. Faubus has named new members of the state board of health and reappointed two members. Reappointed were **Dr. D. W. Goldstein** of Fort Smith and **Mrs. Angie Faye Waldrum** of North Little Rock. New members are **Dr. Perry J. Dalton** of Camden, **Dr. C. A. Archer** of Conway, **Dr. John W. Dorman** of Springdale and **Dr. Charles W. Swingle** of Marked Tree.

Dr. Tom Robinson, formerly of Ola, began practice of medicine in the new Atkins Clinic in January.

Election of officers for the Rogers Memorial Medical Staff for the new year has been announced. **Dr. Grier Warren** was elected chief of staff to succeed Dr. Lee A. Dean. Other officers elected were **Dr. Harry White,** vice chief, and **Dr. Jim Pickens,** Secretary.

Dr. John Ed Alexander was elected president of the Columbia County Medical Society at the January meeting of the society. **Dr. Fred Lee** was elected vice president and **Dr. C. L. Weber,** secretary-treasurer.

Proceedings of Societies

The Tenth Councilor District Medical Society held a dinner at the Ward Hotel, Fort Smith, on November 23rd, honoring Congressman James Trimble and there were 51 of the 72 county physicians present. In addition, there were doctors from Crawford, Johnson, Franklin and Pope-Yell Counties. Also present as guests of the Medical Society were representatives of the Fort Smith newspapers, Chamber of Commerce, State House of Representatives and Senate, City and county government, Bar Association, Ministerial Alliance, Pharmaceutical Association, AFL-CIO, Kiwanis Club, and several local business firms and factories.

Congressman Trimble spoke to the group after dinner. He stated that he was very favorably impressed with the doctor's apparent growing interest in civic affairs and in government and urged physicians to continue to develop their participation in affairs outside of medicine.

In a program conceived by Dr. Stanley Applegate of the Ninth Councilor District, a representative of the local society — Dr. Friedman Sisco — has made a series of talks to the various civic clubs in Springdale on the Forand Bill. Representatives of the Medical Society report that discussions on legislation of interest to the medical profession have been held with both senators and the congressman.

In early December, the Woodruff County Medical Society entertained Congressman Wilbur Mills with a duck hunt and supper. Representatives of other groups in McCrory were invited to participate in the affair.

A Health Conference on Aging was held in Baxter County on November 13th with over 200 people in attendance. Dr. Ben N. Saltzman, President of the Baxter County Medical Society, presided at the meeting and discussed "Medical Problems of the Aging." The program also consisted of the following: "Eating for Health in Later Years," Miss Jana Jones, Chief Nutritionist Consultant, State Board of

Health; "Dental Problems in Aging," Dr. B. F. Lofton; "Preparing for the Later Years," Miss Helen Robinson, Extension Health Education Specialist, Arkansas Agricultural Extension Service; "More Than Bread," Reverend J. Daniel Zeluff; a skit on Senior Citizens' Activity Today and a discussion period.

The Boone County Medical Society sponsored a public appreciation dinner at Spring Lake in November, honoring United States Representative James W. Trimble. Other guests were State Senator Roy Milum, Representative Vance Hickman, Mayor Dean Hester, County Judge Ralph Hudson, Chancery Judge Ernie Wright, and Municipal Judge Virgil Willis. About seventy-five people attended the meeting, at which Dr. J. Lex Moore of Harrison served as master of ceremonies.

The Miller County Medical Society and its Auxiliary held a dinner meeting in December honoring members of the State Legislature from both Texas and Arkansas and local government officials. The meeting was also attended by representatives of local civic organizations.

The Ouachita County Medical Society met in regular monthly dinner session, December 8, as guests of Doctor and Mrs. J. W. Hawley in their home at Fort Lookout. Dr. Paul Henley of El Dorado was the speaker. The following new officers were elected: Dr. Jack Jameson, President; Dr. W. H. Pruitt, Vice President; Dr. R. B. Robins, Secretary; Dr. L. E. Drewrey, Delegate; and Dr. L. V. Ozment, Alternate.

Senator John McClellan was guest speaker at the Craighead-Poinsett Medical Society meeting in Jonesboro December 8. Dr. C. G. Swingle of Marked Tree is president-elect of the Society.

The Woodruff County Medical Society held a steak dinner at Morris Hunting Lodge for Congressman Wilbur Mills on December 23rd. Special guests at the meeting were State Senator John Eldridge and State Representative Jack Oakes.

The Craighead-Poinsett Medical Society met January 6. Newly elected officers including President, Dr. Charles Swingle of Marked Tree, Vice President, Dr. Ed Cooper of Jonesboro and Secretary, Dr. J. H. McCurry of Cash were installed.

New Members . . .

Dr. Charles R. Baker has been accepted for membership in the Pulaski County Medical Society. A native of Harrison, Arkansas, Dr. Baker received his preliminary education at Harrison, and was graduated from the University of Arkansas School of Medicine in 1957. Dr. Baker is now an assistant resident in internal medicine at the University of Arkansas Medical Center.

A new member of the Pulaski County Medical Society is **Dr. Earl W. Pearson, Jr.** Dr. Pearson was born at Miami, Florida, and received his preliminary education at the Arkansas State Teachers College, Conway, Arkansas. His M. D. degree was received from the University of Arkansas School of Medicine in July, 1958. Dr. Pearson is associated with Dr. Ewing C. Reed at 1119 Bishop, Little Rock, Arkansas.

Dr. Mose Smith, III has been accepted for membership in the Pulaski County Medical Society, he is a native of Memphis, Tennessee and received his preliminary education at Yale University and his M. D. degree was obtained from the University of Arkansas School of Medicine in June, 1956. Dr. Smith served his internship at the University of Arkansas Medical Center from 1956-1957 and was a Medical Officer with the USNR from 1957-1959. He is now an assistant resident in Ob-GYN at the University of Arkansas School of Medicine.

Dr. John W. Vinzant is a new member of the Pulaski County Medical Society. He is a native of Ratcliff, Arkansas, and obtained his preliminary education from the University of Arkansas School of Medicine in 1957. Dr. Vinzant is now a resident in surgery at the V. A. Hospital in Little Rock.

Book Reviews

SYNOPSIS OF GYNECOLOGY. Robert James Crossen, M.D., Daniel Winston Beacham, M.D., and Woodard Davis Beacham, M.D. Pp. 340, 1959. The C. V. Mosby Company, St. Louis, Missouri.

This small handbook of Gynecology is well written and well illustrated. It devotes perhaps its only criticism in that it is only 340 pages long and of this, the authors have used roughly 60 pages for Anatomy and Physiology. The discussion of the physical examination is excellent and quite complete. Of a special interest is the chapter on Infertility which, in the reviewer's opinion, should be somewhat more complete. This book is recommended as a handbook for medical students and internes. AKJ

CHRISTOPHER'S MINOR SURGERY. Eighth Edition. Edited by Alton Ochsner, M.D., F.A.C.S., Professor of Clinical Surgery, Tulane University School of Medicine, and Michael E. DeBakey, M.D., F.A.C.S., Professor of Surgery and Chairman of the Department of Surgery, Baylor University College of Medicine, Illustrated, Pp. 539, 1959, W. B. Saunders Company, Philadelphia and London.

Christopher's textbooks of surgery have been outstanding textbooks since their first printing. This eighth edition of Christopher's Minor Surgery is an excellent text edited by Ochsner and DeBakey and written by a group of outstanding surgeons. It is heartily recommended that the reader study the preface in which the authors state that they dislike the title "Minor Surgery"; no surgery is minor. Actually, they have tried to limit the text to surgical diagnosis and therapy which can usually be carried out in a physician's office or an out-patient department. It is the reviewer's opinion that many of the conditions discussed in this textbook are of a more serious nature than one would be led to believe from the title. Perhaps this book should be limited to conditions treatable in an ambulatory patient. The text and illustrations are excellent. There is a good section on anesthesia and resuscitation. The reviewer would have preferred to delete the chapter on the surgical resident. The section on tumors, although interesting and well written, probably does not belong in this type of text. Generally, however, this is an excellent book and is heartily recommended.

TUBERCULOSIS ABSTRACTS

Sponsored by
The Arkansas Tuberculosis Association

CHEMOTHERAPY OF EXTRAPULMONARY TUBERCULOSIS IN ADULTS

The treatment of extrapulmonary tuberculosis follows the general principles of chemotherapy used in the management of pulmonary tuberculosis. A suggested outline for chemotherapy is given. Prolonged treatment and a delay in instituting surgical measures are recommended.

The management of pulmonary tuberculosis varies considerably to meet problems of individual cases, but the following general principles of chemotherapy, which are widely followed, are also believed to apply to many forms of extrapulmonary tuberculosis:

1. Antibacterial chemotherapy is recommended for all patients with active tuberculous infection.

2. Chemotherapy should be intensive and uninterrupted. Most physicians, but not all, advise combined chemotherapy, using isoniazid with either PAS or streptomycin. When it is well tolerated, PAS is usually employed because it is easily administered. Some physicians prefer to use three drugs — isoniazid, PAS, and streptomycin—for more severe manifestations of tuberculosis. The usual dosage of isoniazid is 100 mg. three times daily (3-5 mg. per kilo body weight), but there is growing indication that larger doses are sometimes more beneficial. Larger doses require the administration of pyridoxine to minimize the risk of neurologic complications (peripheral neuritis). PAS is given in maximal tolerated doses, ordinarily 4 gm. three times daily (150-200 mg. per kilo body weight). Daily administration of streptomycin—1.0 gm. (15-20 mg. per kilo body weight)—is ordinarily reserved for severe manifestations of tuberculosis, and injections every second or third day appear adequate for many cases.

3. Chemotherapy is continued for a prolonged period — usually two years and at least one year—after the tuberculosis has become inactive, as determined by X-ray, bacteriologic, and clinical diagnostic methods.

4. Surgical treatment for pulmonary tuberculosis, particularly pulmonary resection, is ordinarily delayed for at least several months. This long preliminary course of medical treatment sometimes obviates the need for surgery, usually diminishes the risk of tuberculous complications of surgery, and sometimes permits more conservative operations than would have

been necessary earlier in the course of the illness. At other times lesions that appear to be inoperable improve substantially as a result of medical treatment and become operable. In some forms of extrapulmonary tuberculosis, it is probable that surgery, particularly the radical procedures, should be similarly delayed for several months after medical treatment is begun.

SKELETAL TUBERCULOSIS

When affected by tuberculosis, a weight-bearing joint is more likely to require surgical fixation than a non-weight-bearing joint. Peripheral joints heal more rapidly and completely than proximal joints. Joints of the spine are more difficult to treat than joints of the extremities.

Tuberculosis which involves only the synovial membrane is often completely reversible, and a functional cure is usually possible with chemotherapy. Early diagnosis of such a condition may require biopsy.

The fusion of tuberculous joints is best delayed until medical treatment has diminished soft tissue reaction, closed any draining sinuses present, and stabilized the pathologic process, and may be avoided altogether in many instances.

Tuberculous abscesses should be evacuated when possible to facilitate healing.

TUBERCULOUS LYMPHADENITIS

Tuberculous lymph nodes often resolve rather slowly under treatment with specific drugs, but eventual healing is usually possible without surgery. Abscesses associated with tuberculous lymph nodes should be evacuated (aspirated) and occasionally resected. Acid-fast bacilli that are not typical *M. tuberculosis* are occasionally found to cause lymphadenitis. These organisms are usually not responsive to antituberculosis drugs.

GENITOURINARY TRACT TUBERCULOSIS

Tuberculous cystitis responds promptly when the infection is recent and superficial. Despite early clearing of symptoms of cystitis, prolonged treatment is essential for permanent results.

Renal tuberculosis demands prolonged medical treatment in all cases — for even longer periods than in the case of pulmonary diseases—and results are frequently satisfactory, even without resection of seriously damaged kidneys. Opinion among surgeons is divided as to what constitutes an indication for nephrectomy.

Tuberculous epididymitis, seminal vesiculitis, and prostatitis respond slowly but definitely to adequate and prolonged chemotherapy.

Tuberculosis of the female genital tract frequently requires surgery in addition to chemotherapy, especially removal of the abscesses associated with tuberculous salpingitis. Tuberculosis of the endometrium is usually secondary to tuberculosis elsewhere in the genital tract but appears to respond to medical treatment.

MILIARY TUBERCULOSIS AND TUBERCULOUS MENINGITIS

These forms of tuberculosis may frequently be treated successfully, especially when early, intensive, and prolonged therapy is administered. Isoniazid is considered the most important drug. Streptomycin is usually employed daily for a few weeks or months. There is growing evidence that the adrenal corticosteroid hormones are beneficial. Intrathecal therapy is rarely used in the treatment of tuberculous meningitis.

Thomas B. Barnett, M.D.; Edward Dunner, M.D.; H. Corwin Hinshaw, M.D.; Gardner Middlebrook, M.D.; Donald L. Paulson, M.D.; James W. Raleigh, M.D.; William W. Stead, M.D.; Col. James A. Wier, M.C., *Chairman*.

A Statement of the Committee on Therapy, American Trudeau Society, *The American Review of Respiratory Diseases, March, 1960.*

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Menopausal and Post-Menopausal Bleeding**

CONRAD G. COLLINS, B.S., M.D., M.S. AND FREDERIC W. JANSEN, B.S., M.D.*

Abnormal bleeding of genital origin is a significant finding in any age group. When it occurs during the menopause or post-menopausal period it acquires special significance, for during this period genital bleeding is more often associated with organic pathology than in the younger age groups and may often be indicative of malignancy occurring in the pelvic organs.

The frequency with which malignancy is met in this group is borne out by the finding of malignancy in 15.7% of menopausal bleeders, with a range of 5.3-17.4%, (Brewer) (1) and 50% of post-menopausal bleeders, with a range of 18-87% (Evans) (2). In 284 patients with menopausal or post-menopausal bleeding, hospitalized during the period Jan. 1, 1955 through Jan. 1, 1959 on the Tulane Gynecologic Unit of Charity Hospital, the incidence of malignancy in menopausal bleeding was 18.75% and 28.6% in post-menopausal bleeding. (Table I). These figures reflect a slightly higher incidence in menopausal and a slightly lower incidence in the post-menopausal groups since only patients with severe degrees of menopausal bleeding are prone to present themselves for examination, whereas *all* patients with post-menopausal bleeding no matter how minimal it may be are hospitalized for investigation.

TABLE I
ORIGIN OF MENOPAUSAL AND POSTMENOPAUSAL BLEEDING

1. Postmenopausal		
Benign	157	
Malignant	63	(28.6%)
Total	220	
2. Menopausal		
Benign	52	
Malignant	12	(18.75%)
Total	64	
3. Total benign origin	209	
Total malignant origin	75	(26.4%)
Total	284	

Post-menopausal bleeding is considered to occur in any patient having genital bleeding one or more years after the cessation of menses no matter how minimal the amount.

Abnormal menopausal bleeding is considered in patients in the menopausal group who show: excessive cyclic bleeding that is a significant increase in a specific patient's flow; significant prolongation of periods over previous normal periods; significant decrease in cyclic interval or intermenstrual spotting; and continuous bleeding either as daily spotting or moderate or profuse flow.

MATERIAL

Our study includes 284 patients hospitalized on the Tulane Gynecologic Unit of Charity Hospital, New Orleans, Louisiana, from Jan. 1, 1955 through Jan. 1, 1959 with the diagnosis of menopausal or post-menopausal bleeding. This group of patients consisted wholly of patients in whom bleeding of origins other than the upper genital tract had been excluded by examination. Of these patients 220 had post-menopausal and 75 had abnormal menopausal bleeding.

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The ages of these patients varied from 40 to 88 years. Of that group whose bleeding occurred from benign origins the greatest incidence occurred in the fourth and fifth decades, (74 and 89 patients respectively), and of malignant origin the greatest incidence was in the sixth decade (31 patients).

Genital malignancy was present in 63 of 220 post-menopausal and 12 of 64 menopausal patients. Cervical malignancy occurred in 29 post-menopausal and 10 menopausal patients. Of this group five were pre-invasive or stage 0 and 34 were invasive stages I-IV. Fundal malignancy was found in 29 post-menopausal and one menopausal patient. This group includes two patients with mixed Mullerian tumors and one patient with leiomyosarcoma. Ovarian malignancy was present in five post-menopausal and one menopausal patient. (Table II).

TABLE II
LOCATION OF MALIGNANCY

Cervix		39
Invasive	34	
Preinvasive	5	
Fundus		30
Ovary		6
Total		75

TABLE III
DIABETIC BLEEDERS

Benign	10	
Malignant	11	(52%)
Cervical	2	
Fundal	9	
Total	21	

Diabetes was an associated finding in the total group 21 times. Of this group malignancy was present in 11 patients. Two cases were cervical in origin while nine were fundal (all adenocarcinoma). The greater incidence of fundal over cervical malignancy being anticipated (Table III).

The most frequent benign lesions were leiomyomata, endometrial polypi, and chronic adnexal and uterine inflammatory disease (chronic or residual inflammatory disease, unruptured tubo-ovarian abscess and pyometria). Endometriosis and adenomyosis occurred only in three cases. The remainder had no demonstrable gross lesion. In this group are included hyperplastic endometria, atypical endometria, cystic hyperplasia and atrophic endometria.

The associated systemic diseases of severe and significant nature included cardio-vascular disease in 37, pulmonary in 7, diabetes in 10 and 11 metabolic diseases exclusive of diabetes.

The management of these patients falls into two categories: those with malignancy disease and those in whom no malignant lesion could be found. In general, all patients except those with positive endometrial biopsy or cervical biopsy for invasive carcinoma received dilatation and curettage. Those patients with atypical hyperplasia, carcinoma in situ, cervical stenosis and suspicious or positive Papanicolaou smear received dilatation, curettage and knife conization. In these cases this was considered to be part of the diagnostic investigation.

TABLE IV
DISPOSITION — BENIGN

Surgery		189
Vaginal	156	
Abdominal	33	
Refused surgery		20
Total		209

The patients with benign lesions received hysterectomy 137 times in the post-menopausal and 52 times in the menopausal group. Hysterectomy was done by the vaginal route in 156 cases and by the abdominal route in 33 cases (Table IV). An associated plastic vaginal operation was done in 65 cases, 36 patients received adnexectomy, 12 vaginally and 24 abdominally. Refusal of further surgery (beyond diagnostic D & C) occurred in 20 instances. In 101 of these patients there was coexistent genital relaxation (cysto-urethrocele, rectocele and prolapse). In addition, 3 patients had associated urethral diverticuli, one a healed vesico-vaginal fistula of benign origin and one an associated vaginal cyst. Leiomyomata were found in 54 cases; endometrial polypi in 8; residual inflammatory disease in 7;

benign ovarian pathology (benign cystic teratoma, simple cyst, and ovarian fibroma); and in 9 cases there was no demonstrable gross lesion.

The management of malignant lesions is predicated on the site and extent of involvement (Table V). Patients with in-

TABLE V

DISPOSITION — MALIGNANT

Radiation	20
Surgery	8
Radiation and Surgery	45
No therapy	2
Total	75

traepithelial carcinoma of the cervix (5) all received hysterectomy with removal of wide vaginal cuff. Invasive carcinoma of the cervix was treated with radiation therapy in 14 cases and with radiation therapy followed by extensive surgery in 19 cases. Fundal malignancy was treated with radium in 14 cases and radium, surgery and deep roentgen therapy in 19 cases. It must be noted that we do not consider radium alone to be adequate treatment for fundal carcinoma. These 14 patients refused further treatment. The patients with ovarian malignancy received radiation and surgery in 4 instances and surgery alone in 2 instances. Two patients received an exploratory operation for malignancy with no definitive therapy. Of the malignant group the associated gynecologic lesions were prolapse and cystourethrorectocele 3, leiomyomata 7, tubo-ovarian abscess (with intraepithelial tubal malignancy) 1, vesico-vaginal fistula 2 and pyocolpos 1. The associated severe systemic diseases were cardio-vascular 8, pulmonary 2 and diabetes 11.

DIAGNOSIS

Any patient who presents herself with the complaint of menopausal or postmenopausal bleeding is considered to have a malignancy unless otherwise proven. Initial diagnostic study is begun upon the first clinic visit.

A thorough history is elicited and the following salient points are emphasized: interval, duration and amount of cyclic bleeding; prolonged or continuous bleeding either as spotting, moderate or profuse bleeding; intermenstrual bleeding, postcoital or postcontact bleeding; previous surgical procedures or radiation; previous medication; and symptomatology related to the gastrointestinal or genitourinary symptoms (Table VI).

TABLE VI

HISTORY

1. Post Coital	4. Amount
2. Medication	5. Radiation
3. Interval	6. Surgery

The importance of the menstrual history lies in the establishment of the diagnosis of menopausal or post-menopausal bleeding and the degree to which it exists. Although we recognize readily the association of post-menopausal bleeding and malignancy, one must consider that cyclic bleeding does not preclude the possibility of malignancy being present since bleeding can occur from the remaining normal endometrial tissue. There is no relation between the amount of blood loss and the degree of involvement.

Although we have abandoned the use of radiation therapy in benign disease because of many unsatisfactory results, eliciting this history or the history of radiation in any bleeding patient would make one highly suspicious of malignancy. Malignancy occurred in 14 of 735 cases of post-irradiation menopause reported by Evans (2), an incidence 3½ times the expected incidence! Malignancy may exist undetected at the time of administration of radiation therapy for benign disease or may develop at a later time and be concealed by radiation changes such as cervical stenosis.

The type and extent of previous surgery are important factors and the history of previous hysterectomy should not preclude examination for existing malignancy.

Previously administered medication, especially exogenous estrogenic substances, is an increasing cause of genital bleeding in these groups but this does not obviate the necessity of search for malignancy.

The initial examination includes: cyto-

logic vaginal smear; inspection of vulva; thorough bimanual, speculum and recto-vaginal examination INCLUDING SOUNDING OF THE NON-PREGNANT UTERUS; cervical biopsy of suspicious cervical lesions; endometrial biopsy and culdocentesis (Table VII).

TABLE VII

EXAMINATION	
1. Papanicolaou Smear	4. Sound Uterus
2. Bimanual	5. Recto Vaginal
3. Speculum	6. Biopsy
	7. Culdocentesis

Through these diagnostic procedures we are able to localize the lesion within the genital system. Benign lesions of other systems are then submitted to more intensive study by consulting services. Cytologic vaginal study and biopsy of any suspicious cervical lesion help to establish the diagnosis of cervical malignancy. Endometrial biopsy is utilized, A POSITIVE FINDING BEING SIGNIFICANT, a negative finding of no value. A SOUNDING OF THE UTERINE CAVITY IS OF VALUE IN DETERMINING CERVICAL STENOSIS AND PYOMETRIA.

In the presence of a palpable adnexal mass culdocentesis is performed and the fluid submitted for cytologic and cell block study for malignant cells. The finding of malignant cells in this fluid is of extreme diagnostic and prognostic value (3).

CAUSES

In evaluating the complaint of bleeding in menopausal and post-menopausal patients one must consider carefully vulvar, rectal, urethral, vaginal, cervical, fundal, tubal, ovarian and hormonal etiologies as the possible cause of the bleeding (Table VIII).

It is important to reiterate that bleeding in this group of patients may arise at any point in the genital, urinary or gastrointestinal tracts.

Bleeding of vulvar origin can be associated with any hypertrophic or atrophic lesion of the vulva. During the period encompassed in this study vulvectomy was performed upon 40 patients.

TABLE VIII

POSSIBLE CAUSES	
1. Vulvar	5. Cervical
2. Rectal	6. Fundal
3. Urethral	7. Tubal
4. Vaginal	8. Ovarian

The indication for vulvectomy was benign disease in 21, pre-invasive malignancy in 3 and invasive malignancy in 16 patients. Where a benign lesion was present, 8 post-menopausal and 3 menopausal patients had a complaint of bleeding of vulvar origin. In the case of malignant lesions 5 post-menopausal and 2 menopausal patients had bleeding of vulvar origin.

Bleeding frequently is a complaint of the patient with malignant or benign lesions of the lower gastrointestinal tract and frequently is interpreted by the patient as genital bleeding. The finding of palpable pathology or other evidence of bleeding from this source warrants thorough proctologic and roentgenologic study.

Bleeding from the urinary tract also may be misinterpreted by the patient. Thorough investigation through the use of cystoscopic examination and pyelogram is indicated whenever the history or findings suggest the urinary tract to be the source.

Bleeding of vaginal origin may have as its cause malignancy of the vagina, acute or atrophic vaginitis, or ulceration caused by foreign body, pessary or self administration of medication such as potassium permanganate tablets. Bleeding in this group of patients, though one of the above causes is found, is highly suggestive of malignancy and Papanicolaou smear *should* be performed.

The causes of fundal bleeding are many and the most important of these is carcinoma. Endometrial or endocervical polypi are frequent causes of bleeding and careful examination of these structures for carcinomatous change must be carried out. Leiomyomata, submucous myoma or polyp with ulceration of its surface may result in bleeding particularly in the menopausal group.

In those patients with no apparent lesion, hyperplasia caused by physician ad-

ministered hormones, sustained or reactivated ovarian function, or a functional ovarian tumor may be the cause.

Bleeding of ovarian origin, that is, vaginal bleeding caused by ovarian malignancy, must be considered when there is no other apparent cause. Evans (2) reports an incidence of 25% of vaginal bleeding in 265 patients with ovarian malignancy. Vaginal bleeding from the parenteral or systemic administration of estrogens in the treatment of menopausal symptoms, osteoporosis, and arthritis may occur. Although we do not utilize systemic estrogens in patients in this group we wish to emphasize that although bleeding is considered to be due to withdrawal of estrogenic substance, investigation for possible malignancy must be considered.

MANAGEMENT AND SURGERY

The prime requisite in the treatment of bleeding in these patients is the establishment of the correct diagnosis (Table IX).

TABLE IX

THERAPY AND MANAGEMENT	
1. Drugs	6. D & C Abdominal hysterectomy
2. Hormones	7. D & C Radiation
3. D & C	8. D & C Radiation and Surgery
4. D & C-Cone	
5 D & C Vaginal hysterectomy	

Benign lesions of the vulva and vagina are managed through the administration of proper medical therapy to correct the condition and produce symptomatic relief. Granulomatous hypertrophic or persistently symptomatic benign lesions of vulva are treated with wide vulvectomy; recurrent lesions are completely reevaluated and treated medically. Proven benign lesions of vagina such as atrophic or acute vaginitis are treated with specific medication to correct the inflammation or through the *local* administration of estrogenic substances.

All patients hospitalized with the diagnosis of bleeding in the menopausal or post-menopausal period, who had negative cervical and endometrial biopsies, received dilatation and fractional curettage at the time of surgery. If the endometrium appeared normal at this time vaginal or abdominal hysterectomy with the correction of any associated gynecologic lesion was performed. If the endometrium appeared atypical or excessive in amount hysterectomy was deferred to await the definitive pathologic diagnosis. We do not depend upon frozen section evaluation of curetted tissues.

Patients with carcinoma-in-situ, atypical hyperplasia of cervix, suspicious or positive Papanicolaou smears, and cervical stenosis receive dilatation, curettage and cold knife conization. In this group of post-menopausal or menopausal patients in whom no malignancy is found on this examination hysterectomy is performed at a later date. RADIATION THERAPY IN BENIGN DISEASE IS NOT UTILIZED.

The management of malignancy depends upon the extent and site of involvement. In pre-invasive carcinoma of the vulva, a wide vulvectomy is performed. This tissue is then subjected to examination of multiple sections to preclude any area of invasion. In invasive lesions of the vulva or lower vagina wide vulvectomy and superficial and deep inguinal and extraperitoneal pelvic lymphadenectomy is performed.

Pre-invasive carcinoma of the cervix is treated with wide conization to preclude any area of invasion and then by vaginal hysterectomy with the removal of a wide vaginal cuff at a later date. Invasive cervical malignancy is treated with irradiation therapy consisting of radium (6,000-6,600 gamma r to point A) and X-ray (2,600-3,000 R to point B).

In cases of stage I and II involvement, radiation is followed by extensive hysterectomy and pelvic lymphadenectomy at 8-10 weeks post-irradiation.

Fundal carcinoma is treated with radium implantation (5,000 gamma r to point A) followed in 8-10 weeks by extensive or wide hysterectomy. This may be followed by post-operative X-ray therapy (2,600 to 3,000 R to point B) although the value of post-operation radiation is conjectural. We reserve its use mainly for patients with recurrence.

Ovarian malignancies are treated by surgical removal of the tumor, the contralateral ovary, the uterus and omentum.

This may be followed by administration of radioactive gold if minimal spread has occurred (the dosage utilized is 150 millicuries) or by pelvic radiation if the disease is confined to the pelvis (3,000-3,500 R). Generalized spread is treated postoperatively with X-ray (1,500 R) delivered to the entire abdomen.

Severe systemic disease is no contraindication to the surgical approach in the treatment of these patients. With appropriate consultation and proper pre-operative care these patients are able to tolerate surgery well. We do not predicate our treatment on the basis of the patient's general health.

SUMMARY AND CONCLUSIONS

The finding of abnormal menopausal or post-menopausal bleeding must be evaluated completely once it has been firmly established that the bleeding is genital in origin. It must be considered indicative of a malignancy until it has been positively shown to be of a benign origin. This is borne out by the data presented here; 28.6% of post-menopausal and 18.75% of menopausal bleeding was found to be of malignant origin. The prime requisite in the evaluation and the management of these patients is the establishment of the correct diagnosis.

We utilize the surgical approach for the correction of abnormal menopausal and post-menopausal bleeding of benign origin, feeling that bleeding of this type in any patient is abnormal. When proper medical pre-operative care is given, severe systemic disease, though more common in these groups, is not considered to be a contraindication to the surgical approach in the treatment of menopausal and post-menopausal bleeding.

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Clinical Recognition of Dissecting Aneurysm*

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With the recent great strides in cardiovascular surgery, more and more cases of dissecting aneurysm of the aorta will be approached with definitive therapy. Such progress will remove this entity to considerable degree from the group of academically interesting, but rather hopeless conditions to a position of genuine challenge to the diagnostic ability of all physicians. The natural survival rate in dissecting aneurysm is approximately 10% (1) and in most major series reported, the frequency of antemortem diagnosis varies from 30 to 50%. Only definitive surgery will improve this mortality picture. While various steps are necessary for the operative confirmation of dissecting aneurysm, it still remains the responsibility of every physician to recognize the entity initially in order to make the ultimate diagnosis.

Dissecting aneurysm of the aorta is a hemorrhage in the media resulting in separation of the layers of the aortic wall. This is usually associated with a tear in the intima, occurring most commonly just distal to the aortic valves. The tear may, however, occur at other areas in the aorta particularly at the base of the great vessels in the arch, or in the descending or abdominal aorta. The clinical findings usually are manifestations of the portion of the aorta involved and of the extent of the dissection. Grossly, the aorta presents variable increase in diameter and is usually saccular or fusiform in shape. The medial hemorrhage usually extends peripherally, but often some proximal dissection occurs, and it may terminate fatally by rupture into the pericardial sac, as occurred in 78% of one series (2). Other terminal events that may occur include rupture into the pleural space, into the retroperitoneal space, or even into the esophagus (3). However, when the dissecting hematoma ruptures back through the intima into the original lumen, a "double-barrelled" aorta may result, which is often compatible with life. Histologically, a focal degenerative progress, cystic medionecrosis, is usually seen in the media of patients affected.

Although a relatively rare clinical entity, there are several conditions associated with an increased incidence of dissecting aneurysm. Males are affected twice as commonly as females, and the most common age appears to be the fifth and sixth decades. Predisposing factors which, among others, are associated with an increased incidence of dissecting aneurysm include (1) Marfan's syndrome, a mesenchymal defect associated with arachnodactyly, subluxated lenses, and cystic medionecrosis of the aorta (4), (2) pregnancy (5), particularly in the last trimester, and postpartum period, (3) hypertension and arteriosclerosis, (4) coarctation of the aorta, and (5) calcific aortic stenosis. Dissecting aneurysm has also been reported in giant cell aortitis, in tuberculous aortitis, due to translumbar aortography, and following trauma.

CLINICAL FINDINGS

In the majority of cases of dissecting aneurysm, pain is the most common presenting complaint. Usually this pain is in the chest and is described as substernal, radiating through to the back, penetrating, gas-like, squeezing, crushing, or tearing. Pain which is maximal from the onset may be characteristic. The pain also frequently radiates to the abdomen and midepigastrium. Abdominal and epigastric pain is common and in one series of 58 cases, 25% of the patients had manifestations referable to the abdomen (6). Pain in other patients may be in the extremities due to occlusion of peripheral arteries. In one series of 30 autopsied cases (7), the presenting complaint was pain in 21 cases, occurring in the chest in 12, in the abdomen in five, and in the extremities in four cases.

The general appearance of the patient is helpful in many cases. The most outstanding feature in the majority of cases is the catastrophic nature of onset. This usually suggests a vascular accident such as myocardial infarction, peripheral

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artery occlusion, or stroke. However, not infrequently, patients are suspected of having acute surgical abdomens because of the intense character of the pain. Biliary colic or ureteral colic is often suspected.

The general clinical picture in dissecting aneurysm may include any of the following six groups: (1) cardiac manifestations, (2) peripheral arterial manifestations, (3) pulmonary manifestations, (4) abdominal manifestations, (5) renal manifestations, and (6) neurological manifestations. Frequently multiple systems are involved and this complexity may be the first diagnostic lead.

Cardiac manifestations generally include tachycardia, sometimes arrhythmias, and hypertension. The physician is often surprised to find hypertension in a patient who appears to be in clinical shock and this finding should suggest the diagnosis. Cardiomegaly is a common finding, particularly in the older age group.

Cardiac murmurs are of particular significance, especially if they are known to be of recent origin. In the past emphasis has been placed on the murmur of aortic insufficiency and it has been present in as many as 52.9% of cases (8). Systolic aortic murmurs also have been found in many patients. In a review (7) of 30 cases at the John Gaston Hospital, aortic murmurs, either systolic or diastolic or both, were found in 47% of the patients. Aortic systolic murmurs were found in 30% and aortic diastolic murmurs in 27%. The presence of an aortic murmur suggests that the initial tear in the aorta is in the ascending aorta close enough to the valve to produce distortion either by weakening of the intima or by encroachment of the hematoma on the valve ring.

Cardiac tamponade often occurs from rupture of the aneurysm into the pericardial sac. Pericardiocentesis may be diagnostic as well as therapeutic. Pericardial friction rubs occur rarely.

Manifestations in the peripheral arteries often result from occlusion of the aorta or peripheral arteries by the engorged dissecting hematoma. Variation in the blood pressure of one extremity when compared with its opposite member is particularly significant. "Migratory" or transient peripheral arterial occlusion may occur, and the return of pulsation is thought to occur at the time the dissecting hematoma "re-enters" the original lumen (9).

Pulmonary manifestations may include dyspnea, cough, hemoptysis, pleural pain or pleural effusion. Hemothorax is most common on the left. A diagnosis of pneumonia, pulmonary malignancy or pulmonary infarction is not infrequently made.

Abdominal manifestations are particularly prominent in the history, and are usually described as pain, severe and sudden in onset. Hematemesis (10), melena (6), distention of the sigmoid colon simulating obstruction (10), peritonitis (11), or volvulus (12) have been described. The pain is often severe enough to simulate pancreatitis (6, 11).

Renal manifestations may include flank pain suggestive of ureteral calculus, hematuria or uremia. Involvement of the kidneys may be from dissection within the renal arteries or from occlusion of the aorta proximal to the renal arteries. Isolated bilateral renal artery dissection has been reported (13).

Neurological manifestations may result from interruption of the blood supply to the peripheral nerves, spinal cord or brain causing ischemic necrosis. Ischemic necrosis of the peripheral nerves is the most common neurological finding and is manifested by numbness, coldness, tingling, peripheral sensory loss or areflexia. Involvement of the spinal cord may result in flaccid areflexic paraplegia, hypesthesia and atony of the bladder with sphincter paralysis. However, the most impressive and misleading neurological finding results from ischemic necrosis of the brain due to carotid artery occlusion manifested by flaccid hemiplegia, hemianesthesia and often coma. Neurological changes may be transient.

LABORATORY FINDINGS

Laboratory data usually reveal a mild to moderate leukocytosis and occasionally hematuria. Electrocardiographic manifestations are variable, but usually the

tracing is abnormal. Although classically, if the electrocardiogram fails to reveal a myocardial infarction, physicians look for a dissecting aneurysm, it is of interest that the electrocardiographic findings of myocardial infarction may occur as a result of involvement or occlusion of the coronary ostia by the dissection.

Roentgenographic findings are particularly important, especially when a previously normal roentgenogram is available. Widening of the superior mediastinal shadow is suggestive of dissecting aneurysm. When the intima is calcified, widening of the aortic wall may be measured and is occasionally helpful. Fluoroscopy, angiocardiography and laminography have also been helpful.

SUMMARY

The clinical recognition of dissecting aneurysm is dependent on awareness of the entity, clinical suspicion, and an understanding of the varied manifestations. Marfan's syndrome, pregnancy and hypertension should cause an increase in clinical suspicion of dissecting aneurysm. If one realizes that one of the few common needs of all organ systems in the body is blood supply, then multiple system involvement can be tracked down to the common mechanical origin of this need—the heart and the aorta. Because any position of the aorta can be involved in the dissecting process, then understandably, no single clinical picture will suffice for its recognition. Aortic valvular findings may be present when the hematoma involves the ascending aorta, central nervous system findings may result from occlusion of the carotid arteries, spinal cord manifestations result from occlusion of the intercostal arteries and so on down the aorta.

When a patient presents as an acute catastrophic episode—cardiovascular neurological, or abdominal—dissecting aneurysm must be considered. All the finesse of the most careful physical examination may be required to make the diagnosis, but the coexistence of chest pain, aortic murmurs, and evidence of peripheral artery occlusion is practically diagnostic. Diagnostic adjuncts include roentgenographic evidence of widening of the supracardiac shadow, laboratory evidence of hematuria, and absence of the electrocardiographic pattern of myocardial infarction. The presence of electrocardiographic evidence of a myocardial infarction, however, does not exclude dissecting aneurysm.

Dissecting aneurysm of the aorta now is a surgical emergency and requires early and accurate diagnosis for early surgical treatment if the natural survival rate of 10% is to be increased.

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Is There an Undiscovered Factor in Rice That Prevents Hypertensive Cardiovascular Disease?*

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Prior to the discovery of America by Columbus, there were three great cereal areas geographically: maize in America; wheat in Europe, Near East, and North Africa; and rice in the rest of the world including the Malay Archipelago and Madagascar.

The wild ancestor of rice has been identified as Oryza Sativa, a semiaquatic marsh grass, native to India and tropical Asia. The preparation of rice as food for the primitive man was much easier than wheat or corn. Rice was boiled, thereby eliminating the need for grinding and milling tools.

Rice culture began in North America in the Province of Carolina in approximately 1685. The first seed, grown in Madagascar, and less than a bushel, was obtained from John Thurber, captain of a vessel being repaired in Charleston, South Carolina. The seed was given by Captain Thurber to Dr. Henry Woodward, who planted some of it and gave the remainder to a few friends (1). For more than two centuries most of the rice was produced in three states bordering the Atlantic Ocean: North Carolina, South Carolina, and Georgia, and the rivers of these states. Coastal rivers were affected by tides causing fresh water to rise and fall. This was important as rice is an aquatic plant that will not thrive unless the fields are drained intermittently. The tides thus drained the fields, but ultimately the soil of the fields became salted. As rice plants require fresh water, this necessitated new areas for planting.

Rice was first grown in Louisiana, which had a supply of subterranean water, in 1718. This water supply also existed under certain level prairie areas in Texas, Arkansas and California. This, along with mechanization, favored the complete change in location of the rice producing areas, and most of our rice is now produced in the four states of Arkansas, Louisiana, Texas and California.

Soil, to be suitable for growing rice, must be level and of a texture that can be easily built into a dyke. The dykes are surveyed so as to follow the contour of the land at vertical intervals of approximately 0.2 of a foot, and they are constructed very rapidly with a dyke plow. The completed dykes are approximately 3½ feet wide and 10 to 18 inches high. The soil must be sufficiently impervious to prevent seepage of the water confined in the artificially produced lake.

These dykes are usually constructed after the rice has been planted. Seed is sometimes drilled into the soil, but usually it is sown broadcast and harrowed into the ground. The dykes are then constructed. When the rice germinates and has grown to the height of an inch or so, then the fields are flooded with water. Some farmers construct the dykes, flood the fields, and then sow the rice by airplane. The flooding of the growing rice fields requires an enormous amount of water, depending on the rainfall. The average rice pump has the capacity to deliver 1800 gallons of water per minute. One pump will usually supply water for 150 to 200 acres of rice. Water is necessary for approximately 100 of the average 120 days required from planting to harvesting. The fields are drained of water two to three times during the period of growth. Drying of the fields is required to prevent rice plant insect infestation. The fields are usually left dry for a week at each draining and are again drained before harvest time.

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When the grain is a golden brown, the formerly erect stalk is bent by the many mature kernels. The moisture content of each grain of rice decreases during the ripening stage. In the early fall, when the moisture content of the ripened head is down to 20 to 23%, it is ready for harvest.

The ripe rice is harvested by a specially constructed combine. The loose grain is then hauled to a rice drier, where the moisture content is lowered by heat to conform to a definite standard. This process prevents spoilage. The dry rice is then stored in specially constructed storage tanks to await shipment to the mill where the husk is removed, and the grains are polished. The finished milled rice is then packaged or sacked for delivery to the retail grocer.

Rice forms the chief article of diet for more than 50% of the human race, and there is scientific evidence that hypertensive heart disease is rare in this group (13, 14). As a food it is nutritious and easily digested. One hundred pounds of cleaned rice contains about 87 pounds of nutrients, consisting of about 8 pounds of proteins, 0.3 pounds of fats and 79 pounds of carbohydrates. The polishing of rice and the elimination of the husk removes some of the proteins, mineral matter, and a large part of the vitamin B components.

Investigation by Eijkman (2) in 1889 in the Dutch East Indies, revealed that a diet of polished rice resulted in a nutritional disease, beri-beri, due to a vitamin and mineral deficiency characterized by nerve manifestations including anesthesia, edema, and paralysis, and finally the visitation of death. Eijkman also discovered that a diet of unpolished rice prevented this deficiency disease. Forty years later the importance of Dr. Eijkman's original work was recognized, and he was awarded the Nobel Prize in 1929 just one year before his death.

The very commonly used word "Vitamin" was coined by Funk (3) in 1911 in his paper, "The Etiology of Deficiency Disease". Funk extracted a substance from rice bran, where it is present to the extent of 1/10 of 1% and named the substance Vitamine, "Vita" for live and "Amine" for a certain class of chemical compounds. It was later shown that no Amine was present, but the title stuck although the final "e" was dropped. Thus, it can be stated that it was rice, its culture and investigations, that was responsible for the origin of the word, "Vitamin", so well known by all present day peoples, both oriental and occidental.

Much of McCollum's (4) work on the "Newer Knowledge of Nutrition" was done on rice bran, beginning about 1907. His investigation further advanced the knowledge on nutrition.

In 1944, Kempner (5, 6) first reported the use of rice in the treatment of high blood pressure. His results were sufficiently impressive to lead many patients from all over the world to consult him and religiously follow his therapeutic regime. Durham, North Carolina had restaurants that specialized in Dr. Kempner's "Rice Diet". The rice diet as originally recommended by Kempner contained approximately 2000 calories with less than five grams of fat and 20 grams of protein derived from the rice and fruit juice. The patient ate on an average of 250 to 350 grams (8 to 11 ounces dry weight) of rice daily. No particular variety was suggested. It was recommended that the rice be boiled or steamed in distilled water, if the sodium concentration of the tap water was above 20 mgm. per liter. 700 to 1000 cc's of fruit juice was allowed daily. Tomato and vegetable juices were not allowed. The fluid intake consisted only of juices. Supplemental vitamins were added, consisting of A and D along with 5 mgms. thiamine chloride (B_1), 5 mgms. riboflavin (B_2), and 25 mgms. niacinamide per day. The patient could use as much white sugar and dextrose as desired. The diet was estimated to contain not more than 200 mgms. of chloride and 150 mgms. of sodium. No cholesterol was present in the food. This strict regimen was continued for about three months or until the condition which indicated its use had disappeared. Then small amounts of non-leguminous vegetables, potatoes, lean meat or fish prepared without salt or fat were then added to the diet. Kempner (6) reported that 322 (64.4%) of 500 patients were improved as shown by the disappearance of one or

more of these symptoms, such as headaches, dizziness, heart consciousness, and edema. About 25% showed a return to near normal blood pressure levels.

Recently, Kempner et al (7) reported that diabetes mellitus complicated by hypertensive cardiovascular disease responds favorably to the rice diet. This included improvement in some patients of the retinopathy, abnormal electrocardiogram, cardiac status and blood chemistry, and the rice diet did not interfere with the medical treatment of the diabetes.

Following Kempner's original work, Watkins et al (8) reported their two year investigation of the Kempner rice diet on 50 patients with essential hypertension. They agreed essentially with Kempner's results but thought that the maintenance of the diet, in its strict form imposed too much hardship upon the patient, that the diet was too restrictive, and that it could be rendered more palatable by the addition of proteins.

In 1946, Dock (9) compared the relative infrequency of atherosclerosis of the coronary arteries in the Chinese population with the high incidence of this disease in the American Army and intimated that it was the low cholesterol content of the Chinese diet that was responsible for the difference. Since then much work has been done on this phase of human metabolism, but Wheeler (10) expressed the opinion that hypercholesterolemia is inherited as a simple Mendelain dominant, and Adlerberg (11) states that the high serum lipids are the result of hormonal influences.

In 1950, Starke (12) reported that the rice diet causes a decrease in total, free and esterified serum cholesterol in patients with hypertensive vascular disease. She stated that the mechanism is not known by which the normal cholesterol level in the serum is maintained and why, in the process of aging and in certain diseases, the serum concentration rises, and continued with the statement that further studies will be needed to show why hypercholesteremia is reduced by the rice diet. It may be due to the low fat, low cholesterol content of the diet, or to both. The low protein of the diet may be of importance also.

The clinical management of hypertensive vascular conditions by "antihypertensive drug therapy", sympathectomy, ganglionic blocking agents, Rauwolfia preparations, the ubiquitous salt poor and salt free diets, in the opinion of many specialists, has not been wholly successful. Can a high fat diet and a high serum cholesterol be the etiologic factor in the majority of cases of hypertensive vascular conditions in North America? Schroeder (13) spent four months in the seven Oriental countries in 1957 studying the admission, discharge and autopsy data in 13 teaching hospitals. He concluded that attempts to roughly relate the incidence of hypertension with other factors commonly believed to be involved in the pathogenesis of this disease met with failure. There was little evidence that emotional tension was a causal agent in the enervating tropics, and no racial immunity was obvious in this study, nor was there any relationship to the amount or kind of dietary fat or salt intake to these consequences of hypertension found. Schroeder further stated that the cardiovascular death rate in Thailand is the lowest in the world yet it is the greatest producer of rice in that area.

The Orientals may be fortunate in their restricted rice diet with an annual consumption of 120 pounds of rice per capita. North Americans eat less than six pounds annually. The United States produces an average of 100,000,000 bushels per year. This is one per cent of the total world production of rice. 50,000,000 bushels are exported, chiefly to Cuba and Europe, and the Government is selling considerable rice to Indonesia, Pakistan, India and Ceylon under Public Law 480. Most of our rice consumption is confined to the six states of Louisiana, South and North Carolina, Florida, Georgia and California. It is interesting to note that the death rate from cardiovascular disease in these states is far below the national average (14). New Mexico has the lowest cardiovascular death rate in the nation. This state also has a large population of Spanish-Americans who are rice consumers.

In view of the wide disparity of scientific opinions held by qualified investiga-

tors, and in spite of the countless dollars and many hours that have been expended in the research of aging, obesity, and their relationship to heart disease and hypertension, there are many questions that are unanswered on this controversial problem.

Careful investigation of the cause of the difference in the incidence of cardiovascular disease in rice consuming and non-consuming peoples may lead to an answer in the future. This is of utmost importance, in that heart and circulatory disorders account for over 55% of deaths in the United States (14).

There are ten medical schools in the chief rice producing states. Were rice farmers, millers and processors of rice to award a grant to one of the medical schools to thoroughly investigate the whole phase of sterols, steroids and the rice fractions in human nutrition, an unidentified factor, or factors, existing in rice that eliminates or prevents excess cholesterol in the body may be found. Only one-half cent deducted from each bushel of rice produced in the United States would adequately finance an excellent research project. The deduction should be effective for at least three years, but preferably for ten years or more.

SUMMARY

The history of rice production and consumption and its possible relationship to cardiovascular disease has been presented.

The possible value of rice, or one of its constituents, merits further investigation which could be adequately financed by the rice producer.

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What's NEW

Mallet Finger

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This challenging deformity of the hand consisting of loss of full active extension of the distal interphalangeal joint of one of the digits is regarded variously by patients as constituting no functional or cosmetic disability, a slight to moderate disability, or a major handicap, depending on the occupation, social position, and/or psyche of the individual. Abbe's description of two cases in 1894, both treated surgically, appears to be the first report of this entity. Subsequently, the medical literature has been added to by other surgeons whose results can be classified into one of two groups: first, those who have obtained excellent results by the method under consideration, and secondly, surgeons who have failed to find any method satisfactory. The true over-all result from the treatment of this entity is difficult to ascertain from the literature. Both Bäckdahl and Duncan have recognized that in many instances patients whose deformity appeared corrected initially following treatment redeveloped the original deformity after immobilization was discontinued. Regardless of statistical results, there are patients who have been treated earlier and other individuals who have not been previously treated who present themselves for correction of a chronic dropped finger deformity. Correction at this stage has often proven difficult.

To date, reported methods of treatment may be classified as follows:

A. No specific therapy.
B. Immobilization.
   1. Plaster mold or cast.
   2. External splint.
   3. Internal splint.
   4. Open surgical fixation of the injured tendon or fractured bone.

Each has its advocates.

Kirkham, because of poor results obtained by immobilization, has recommended a simple finger exercise consisting of opposing the terminal phalanx of the involved digit against the thumb to hyperextend the distal interphalangeal joints many times each day. Lloyd feels that the available methods of treatment are, as a general rule, more disabling than the deformity and therefore uses no specific therapy. Plaster molds or casts have been advocated by many authors. Platt recommended three-point pressure in a full finger cast with the digit extended. Smillie recognized a necessity for immobilization of the proximal interphalangeal joint in 90 degrees of flexion and described a method of application of plaster for fixation of the digit in this position. Watson-Jones has also recommended the application of plaster with the distal interphalangeal joint hyperextended and the proximal interphalangeal joint flexed. Williams, because of the difficulty involved in maintaining this position during the application of a cast, has described a special technique for its application. Van Demark has pointed out that to relax completely the terminal portion of the extensor mechanism of the fingers, the metacarpal phalangeal joint as well as the proximal interphalangeal joint must be flexed to 90 degrees in order to relax the pull of the interossi and lumbricalae muscles which insert into the lateral band of the extensor hood opposite the proximal phalanx. This appears to be a point not generally appreciated. To maintain a 90 degree-90 degree-190 degree

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position, he has devised and recommended a plaster gauntlet with the digit maintained in proper position by adhesive straps which are removed periodically for inspection and cleansing of the digit.

The types of splints from which the surgeon may choose are almost limitless. The aluminum splint designed by Lewin in 1925 maintains the proximal interphalangeal joint in full extension and the terminal interphalangeal joint in an extended or an hyperextended position. Spigelman's outrigger splint of galvanized steel was designed to maintain flexion of the proximal interphalangeal joint and extension of the terminal interphalangeal joint. The Enid splint of cork and wood extends proximally to only the proximal interphalangeal joint while maintaining the distal interphalangeal joint in an hyperextended position. This form of immobilization is considered adequate by the English surgeon, Mason. Logue has found a bivalved acrylic splint satisfactory.

In 1951, Pratt presented a new method for immobilization of the involved digit that he referred to as an "internal splint". A small Kirschner wire is inserted through the tip of the involved digit along the dorsal surface of the hyperextended distal interphalangeal joint, through the middle phalanx, and into the proximal phalanx with the proximal interphalangeal joint flexed. Care is taken not to pass the Kirschner wire through the flexor tendon mechanism. The wire is clipped off beneath the skin and removed at the end of six weeks. Casscells has recommended the same technique but has limited immobilization by internal fixation to the distal interphalangeal joint. Hillman has described immobilization of the distal interphalangeal joint in hyperextension by an internal-external splint consisting of No. 2 silk laced through the dorsal surface of the digit.

Because of frequent unsatisfactory results by closed or indirect methods, other surgeons have resorted to surgical repair of the damaged tendon or bone. Duncan, who has explored the injury in 61 instances through an extensive U-shaped incision placed over the dorsal aspect of the distal joint, has found that the pathology may be of four types:

1. An avulsion fracture of the dorsal aspect of the base of the terminal phalanx. A tongue of articular cartilage may be avulsed with the bone fragment.
2. Avulsion of the extensor tendon from its bony insertion into the terminal phalanx.
3. Rupture of the extensor tendon proximal to its bony insertion but distal to attachment of the dorsal synovial reflection of the distal interphalangeal joint.
4. Rupture of the tendon proximal to the synovial attachment.

In 39 closed injuries in his series, ten were of type one, while twelve were type two, and seventeen were classified into groups three and four. Smillie has recognized a fifth type occurring in children and consisting of a dorsal dislocation of the epiphysis of the distal phalanx with the tendon attached. He also expressed the opinion that avulsion of the tendon (type two) was the most common injury. Duncan's repairs were effected by sutures and tendon graft depending upon the extent of the damage. This same surgeon pointed out that failure to obtain satisfactory reduction of an avulsed bone fragment (type one) may be due to a tongue of articular cartilage attached to the bone fragment being reflected into the fracture site. In this instance, satisfactory realignment can be obtained only by an open reduction. Bunnell's pull-out wire technique as described by him and as modified by others such as Hall, who also appreciated the desirability of immobilizing the metacarpo-phalangeal joint in flexion, has its advocates. Nichols has presented a tendon suture technique which appears effective, while LeVay regretfully admits operating upon six patients with only one satisfactory result. Advocates of most techniques recommend six to eight weeks immobilization.

The causative mechanism of this deformity is usually regarded to be direct trauma to the extensor tendon mechanism near its insertion into the terminal phalanx or due to the application of a strong

flexion force to the end of the finger while the extensor hood is taut. Even so, Roemer's expressed opinion that "the common 'baseball' or 'mallet finger', is frequently due to forceful hyperextension of the distal phalanx on the middle phalanx" makes interesting reading. He stated that as a result of hyperextension of the terminal interphalangeal joint, a chip fracture of the base of the terminal phalanx could be precipitated or the tendon could be severed by impingement between the base of the distal phalanx and the dorsal aspect of the middle phalanx.

As to incidence of occurrence, Bäckdahl found that in 52 cases, 34 were in males, and in 40 the right hand was involved. The ring finger was injured in 25 instances while the middle finger was involved in 21, and the little finger in 4. The thumb and the index finger were each affected in one case in his series. Other authors have observed a similar incidence of occurrence. Although this deformity occurs in all social and occupational groups, it is seen most frequently in laboring men and athletes. The statistical incidence as regards the general population seems to be unknown. The frequency of occurrence of residual deformity with or without treatment appears to be speculative, but it is not an uncommon finding. However, not all individuals presenting this chronic affectation feel that correction of the deformity is necessary or desirable. Those who seek correction of the deformity do so because of pain in the involved articulation upon activity, for cosmetic reasons, or because of functional disability due to the dropped position of the terminal phalanx. The present author has no additional suggestions as to how the surgeon may prevent seeing patients with a late deformity, but it is toward lessening of the resulting disability of the chronic deformity that he directs the reader's attention.

Watson-Jones has stated "A fully developed mallet finger consists therefore of flexion deformity of the terminal joint which cannot be fully extended, and hyperextension deformity of the proximal interphalangeal joint which cannot be fully flexed." The cause for the secondary hyperextension deformity involving the proximal interphalangeal joint has been assumed to be due to a relaxed volar capsule of this articulation and/or overpull of the central slip of the extensor mechanism at its insertion into the base of the middle phalanx. It would seem possible that hyperextension of the proximal interphalangeal joint may be due in part to secondary attachment of the injured tendon to the dorsum of the neck of the middle phalanx as observed by Duncan. Also, some individuals continue their early efforts to extend actively the dropped distal phalanx, and this may precipitate a greater than usual extension force at the proximal interphalangeal joint. Whatever the mechanism of development of this deformity may be, the incidence of occurrence of "a fully developed mallet finger" appears unknown, but as most authors have not commented upon the presence of a secondary hyperextension deformity of the proximal interphalangeal joint, its occurrence may be reasonably considered to be infrequent. In those cases of chronic mallet finger where hyperextension of the proximal interphalangeal joint is not significant, and where incomplete active extension of the terminal phalanx constitutes the entire problem, all that is necessary for correction is restoration of the last range of active extension of the terminal phalanx while retaining an adequate degree of flexion of the distal phalanx. The simple expedient of creating one deformity to offset another has been found satisfactory by the author in two instances. Reporting of this approach to the problem for a consideration by other surgeons in order to determine the true worth of this procedure would seem indicated.

The operation consists of an open wedge osteotomy of the base of the terminal phalanx just distal to the insertion of the lengthened extensor tendon and the flexor digitorum profundus tendon (Fig. 1 and 2), bone blocked open on the volar aspect of the phalanx. The base of the terminal phalanx is approached through a mid-lateral incision centered over the distal interphalangeal joint. The correct site of the osteotomy is readily determined and a straight transverse cut made across the bone with a fine sharp osteotome

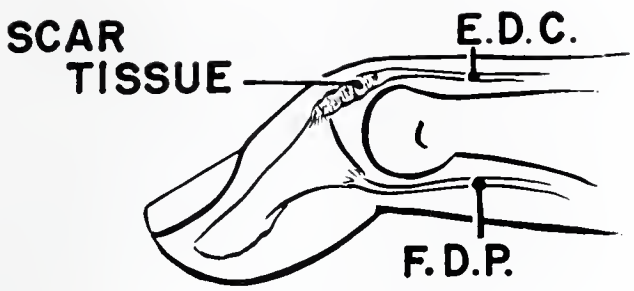


Fig. 1

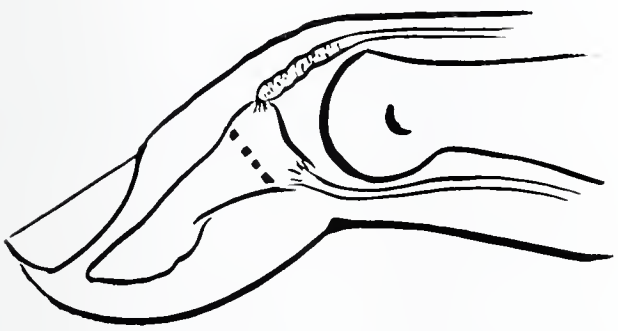


Fig. 2

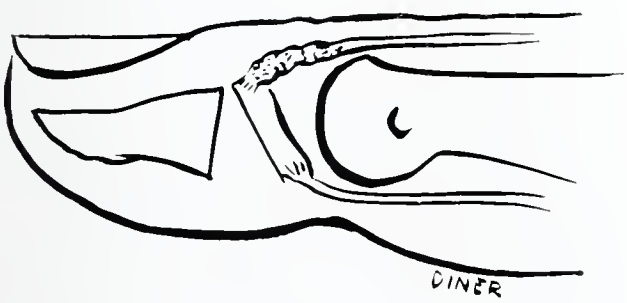


Fig. 3

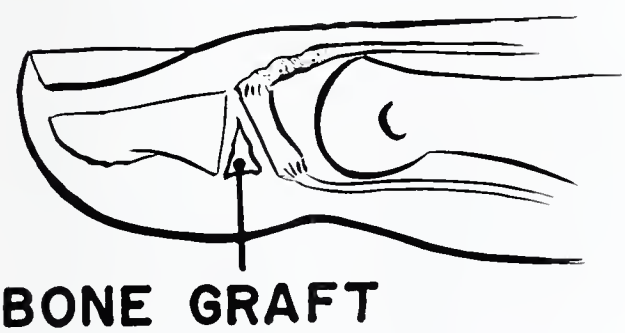


Fig. 4

while the finger rests on an anvil. The terminal portion of the phalanx is wedged up (Fig. 3) and, by means of a small bone block which may be obtained from the superficial surface of the ulna of the same extremity, the osteotomy is maintained open. The final result is shown in Figure 4. The wound is closed and post-operative immobilization is obtained as may be indicated depending upon the stability of the bone block. The author has used an intramedullary pin across the osteotomy, graft, and distal interphalangeal joint for two weeks in his two cases but believes that with greater familiarity with the technique, a splint would prove adequate.

This simple procedure, designed to correct the disability of the uncomplicated chronic dropped finger, has been satisfactory in two instances. It specifically avoids the delicate re-suturing involved in reconstruction of the lengthened extensor mechanism. While the author has not operated upon a digit in which all active extension of the terminal phalanx was lacking due to adherence of the avulsed tendon to the dorsum of the neck of the middle phalanx as observed by Duncan, it would seem that the adhesions between the bone and tendon could be freed at the time of osteotomy through the same incision and a paratenon transplant inserted between them.

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A TEACHING SEMINAR
FROM THE
UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

Aortic Stenosis

OWEN W. BEARD, M.D.*

The development of surgical technique for relief of aortic stenosis has placed the burden of making accurate diagnosis of this lesion upon the clinician who first sees these patients. Sir Russell Brock (1) stated in 1957, "Aortic stenosis is a surgical disease and each case should be considered as possibly needing surgery; not as is now usual, being accorded regular observation until some sinister or subterminal symptoms appear. Neglect of, or a 'laissez faire' attitude towards chronic or subacute obstruction of the bladder, or colon, would be considered professional incompetence or neglect, and yet, chronic or subacute obstruction of the left ventricle is still viewed with complacency." Experience with other forms of operable heart disease has shown that the proper selection of patients for surgery requires not only accurate diagnosis but also: (1) that the natural life history of the disease is known, (2) that the pathologic physiology of the lesion is known, and (3) that a quantitative estimate of severity can be made, either clinically or with the aid of special techniques.

Many studies of large series of patients with aortic stenosis have been made in an effort to find the answer to the problem of making accurate diagnosis of the presence of, and degree of severity of aortic stenosis. It has become readily apparent that the classic textbook description of the diagnostic triad of (1) harsh basal systolic murmur with transmission into the neck vessels, (2) systolic thrill in the aortic area, and (3) small plateau pulse with reduced pulse pressure, is grossly inadequate for making the diagnosis of operable aortic stenosis. Autopsy studies (2) revealed that the correct diagnosis of aortic stenosis was being made in only 25 to 50 percent of cases, even on teaching medical services. Patients who fulfilled the classic diagnostic triad were likely to have aortic stenosis, but be past the operable stage. The great majority of patients did not meet the diagnostic criteria; hence the correct diagnosis was not made. These and clinical studies have shown that the diagnosis of aortic stenosis is often a difficult one to make with certainty and requires a high index of suspicion, plus an awareness on the part of the clinician of its varied symptoms and signs.

ETIOLOGY

A few years ago aortic stenosis was considered to be due primarily to atherosclerosis. Most authors today are in agreement that, by far, the majority of cases of aortic stenosis are due to rheumatic fever. In the Boston area 90 to 95 percent of stenotic lesions of the aortic valve are thought to be rheumatic or infectious in origin (3). Studies from other areas report a positive history of rheumatic fever in about half the patients with aortic stenosis and in about the same proportion of younger persons with mitral stenosis (4, 5). Karsner and Koletsky (6) believe that 98 percent of their 200 autopsied patients with aortic stenosis had had rheumatic fever. There is no doubt that some cases are due to various forms of arteriosclerosis and others due to a deformity of a congenitally bicuspid valve.

PATHOPHYSIOLOGY OF AORTIC STENOSIS

When the aortic orifice is decreased in area, an elevation of intraventricular pressure is necessary in order to maintain a normal blood flow. Thus a pres-

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sure gradient across the aortic valve becomes established. If the area of the aortic orifice is reduced below a point variously estimated at from 50 to 25 percent of normal, a very marked pressure gradient is required to maintain a normal blood flow. Left ventricular pressures as high as 320 mm. Hg. have been measured (7). The left ventricle hypertrophies in response to this increased work load. The hypertrophy and work load of the left ventricle not only increases its nutritional requirements, but also lengthens the diffusion distance between coronary blood and the muscle cell. Under conditions of either rest or exercise the stroke volume may fall. Since the cerebral circulation is very sensitive to variations in systolic output, vertigo and syncope are common clinical manifestations of aortic stenosis.

DIAGNOSIS OF AORTIC STENOSIS

A. Symptoms:

1. Congestive failure is the most frequent reason for aortic stenosis patients consulting a physician. In one series the average duration of life after onset of decompensation was 22.7 months (3). Dyspnea on exertion is the most common symptom (86.5 percent) (8). Acute paroxysmal dyspnea with pulmonary edema is less common (21 percent). Peripheral edema and other manifestations of congestive failure alone or in combination occurs in about 30 percent (8).

2. Fatigue is a common complaint (78 percent) (8).

3. Angina pectoris, typical or atypical, occurs in 32 (2) to 48 percent (8) of patients with aortic stenosis, but rarely as the only symptom. Since aortic stenosis usually occurs in the older age group where coronary atherosclerosis is common, it is often impossible to decide whether the angina is due to coronary artery disease or to the aortic stenosis. Some authors conclude that the chest pain associated with aortic stenosis does not differ from that of typical angina pectoris. Others feel that the angina of aortic stenosis is more likely to come on following exercise than during exercise, more likely to be on the right side of the chest or radiate to the right, and more likely to be of longer duration and respond more slowly to nitroglycerin than does the angina of coronary artery disease. The incidence of angina does not correlate very closely with the degree of stenosis but does show a definite correlation with weight of the heart found at autopsy. The average length of life after onset of angina is reported to be about 4 years (3).

4. Syncope and vertigo occur in 20 to 30 percent (8) of patients with aortic stenosis. Absence of syncope or vertigo does not exclude severe stenosis, but its presence will usually mean a high degree of constriction. The average duration of life after onset of syncope is about 3 years for patients with pure stenosis. Syncopal attacks do not predispose to sudden death (3).

5. Sudden death is of no practical value in diagnosis but occurs in 14 to 23 percent of patients. Angina pectoris is a common precursor in those patients who die suddenly (3).

B. Signs:

1. Murmur — A loud harsh systolic murmur heard best over the aortic area is the commonest sign, and is the most valuable finding which should lead one to consider the diagnosis of aortic stenosis.

The systolic murmur is loudest at the apex in 16 to 20 percent (3, 2) of patients. In about one half of the cases the harsh basal systolic murmur is transmitted into the neck vessels. Transmission of the murmur depends more on its loudness than on the direction of blood flow. There is no definite correlation between severity of stenosis and the intensity of the murmur. Intensity of the murmur varies not only with valve orifice size, but also with blood flow and with the factors which control transmission of sound. Cardiac decompensation decreases the intensity of the murmur and the presence of aortic insufficiency makes the systolic murmur louder even with the same degree of stenosis. The typical murmur of aortic stenosis is of greater intensity in midsystole and the phonocardiogram records it as having a peculiar "diamond shape". Levine (9) suggests that this "diamond shape" of the murmur is

helpful in the differential diagnosis of aortic stenosis from mitral insufficiency.

An aortic diastolic murmur may accompany the murmur of aortic stenosis and be of such intensity as to mislead one in thinking that aortic insufficiency is the major valve lesion.

2. Thrills are felt in about one half of the cases of aortic stenosis. The presence or absence of a thrill goes hand in hand with the loudness of the corresponding murmur and is no better criteria of the degree of stenosis than is the murmur itself.

3. The aortic second sound, in general, may be decreased or absent, but many exceptions have been noted. Slight stenosis with absent aortic second sound and severe stenosis with loud aortic second sound have been frequently noted. Matthews, et al. (10), stated that so far as they could judge, a knowledge of intensity of the aortic second sound contributed nothing to the evaluation of aortic stenosis.

4. The level of blood pressure is not helpful in the diagnosis of aortic stenosis or even in the estimation of the degree of stenosis. When the systolic pressure is comparatively low it is more likely to accompany a higher degree of stenosis than if it is elevated. Many exceptions to this have been noted, however.

5. Pulse Pattern — Most authors now agree that palpation of the pulse is of very little help in either diagnosis, or estimation of severity of aortic stenosis. As Mitchell, et al. (3), state, "the so called plateau pulse is more often elicited or commented upon after the patient is known to have aortic stenosis than before".

6. Apex impulse becomes heaving or bounding in many patients.

7. Cardiac enlargement may be detected clinically in 50 to 75 percent of patients.

8. Arrhythmias are common but auricular fibrillation is uncommon.

C. Laboratory Findings:

1. X-ray — The most important x-ray finding for the diagnosis of aortic stenosis is finding calcification of the valve fluoroscopically. The aortic valve is generally most readily seen in right anterior oblique position. There may be post stenotic dilatation of the first portion of the aorta. Left ventricular hypertrophy is often not seen on the x-ray. The overall cardiac size may be within normal limits and the hypertrophy manifested only by a rounding of the left cardiac border.

2. The electrocardiogram may show evidence of left ventricular hypertrophy in 50 to 75 percent of the cases. Inverted T waves in the left ventricular leads are commonly found, and some authors suggest that this socalled "strain pattern" in combination with a normal size or not much overall enlargement of the heart shadow by x-ray, is suggestive of aortic stenosis (10, 11). The depth of the T wave inversion was found to bear a close relationship to the severity of stenosis of the aortic valve and was of value in clinical assessment (12).

3. Brachial artery tracings showing the slow (over 0.15 sec.) up-stroke of the systolic pressure curve is thought by some authors to be of value in diagnosis. Other investigators have found a poor correlation between the severity of aortic stenosis and the pulse pressure, duration of brachial artery systolic upstroke, and anacrotic pulse wave (9, 13).

4. Right heart catheterization is of very little value in either diagnosis of, or evaluation of the severity of aortic stenosis (1, 13).

5. Left heart catheterization — An aortic valve may be diseased, even calcified and stenosed, without actually producing a physiologic obstruction (13). In one study the clinical assessment of the severity of the stenosis was confirmed by left heart catheterization in only about 75 percent of the patients (13). Hancock, et al (14), found patients who showed many or even all of the clinical features of calcific aortic stenosis, but at left heart catheterization did not have a pressure gradient across the aortic valve. The only accurate way to determine the degree of aortic stenosis is by left heart catheterization and simultaneous determination of the pressure gradient and blood flow (15). Measurement of the pressure gradient alone at the operating table proved unsatisfactory (13). A hemody-

namically significant aortic stenosis must produce a pressure gradient between the left ventricle and aorta. Brock (1) suggested that patients with pure aortic stenosis with a pressure gradient of 50 mm. Hg. should be operated. When mitral stenosis coexists with aortic stenosis, the pressure gradient is usually much less, and in these cases a gradient of only 25 to 30 mm. Hg. is felt by him to be an indication for aortic valvulotomy. With use of left heart catheterization both pressure gradient and blood flow can be measured and by using the formula of Gorlin and Gorlin (16) the size of the orifice of the aortic valve can be estimated.

Significant obstruction to left ventricle outflow does not occur until the valve has narrowed to about 25 percent of its normal cross section area (2.6 to 3.5 sq. cm.). The critical cross sectional aortic valve area was found to be about 0.5 to 0.6 sq. cm. (7, 17).

RESULTS OF AORTIC VALVULOTOMY—MORTALITY

Bailey (8) reported on a series of 287 operated cases. One hundred and eighty-seven patients had either pure aortic stenosis or with associated insignificant lesions of other valves, and had an operative mortality of 26.9 percent for those operated by transventricular route and 16.5 percent for those operated by transaortic route. There were no deaths with either operative technique when aortic stenosis and insignificant mitral stenosis coexisted as "pure" lesions. Those patients operated on for both aortic stenosis and mitral stenosis had an operative mortality of 17.6 percent and 8.3 percent for the transventricular and transaortic routes respectively. Brock (1) reported an operative mortality of 18 percent in 78 cases. He had only three deaths in his last 48 cases operated on for pure aortic stenosis and only 4 deaths in the last 63 cases of aortic valvuloplasty combined with mitral commissurotomy.

Surgery can now offer sufficient relief with a relatively low mortality (10 to 20 percent) to make it thoroughly justifiable to refer patients for operation. For the best operative results and lowest mortality it is essential that the diagnosis of aortic stenosis be made before the patient reaches the terminal stages of the disease. Operation in the asymptomatic stage or early in the symptomatic stage offers the best opportunities for surgical relief. The operative mortality was higher for those patients who were in congestive failure at the time of, or just prior to surgery.

CASE REPORT

The following case of aortic stenosis is presented to illustrate some of the problems of early diagnosis and the natural life history of the disease. This case is presented not as an unusual but as a usual case.

FIRST ADMISSION:

The first admission of this 59 year old white male was on January 28, 1952. He gave a history of sleeping on two pillows for 18 months. Light headedness and dizziness upon arising from a sitting position and dyspnea upon walking up a slight grade had been noted for 7 months. Typical angina pectoris precipitated by "running after cows" and relieved by rest had been noted for 8 months.

Physical examination revealed his blood pressure to be 144/96 mm. Hg. He had a normal sinus rhythm. A loud systolic murmur was heard at the aortic area. The heart sounds were described as good. No diastolic murmur and no findings of congestive failure were noted. No mention was made of peripheral pulses.

X-ray of the chest suggested concentric hypertrophy of the left ventricle but the overall cardiac size was within normal limits. A prominent aortic knob with prominence in the region of the ascending aorta and probable calcific plaques within arch of the aorta were noted.

The electrocardiogram showed inverted T waves in leads 1 and AVL and either inverted or diphasic T waves in V-3 through V-6. The intrinsicoid deflection in V-6 was less than 0.04 second.

The discharge diagnosis was arteriosclerotic heart disease with angina pectoris and slight left ventricular hypertrophy.

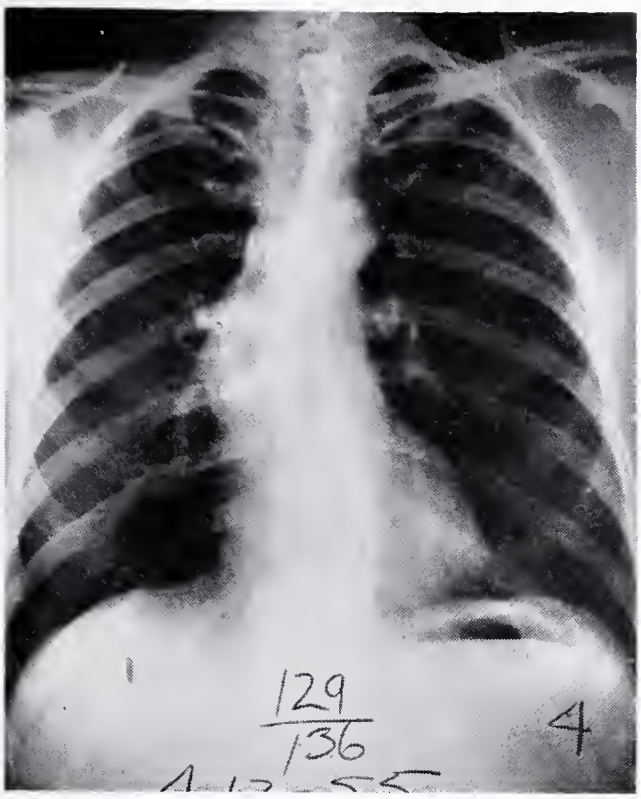


Fig. I. Roentgenogram of chest three years after first admission.

SECOND ADMISSION — April 8, 1955.

His exercise tolerance had decreased to the point where he had dizziness and angina on ordinary activity.

His blood pressure was 120/90 mm. Hg. A loud systolic murmur, without palpable thrill, was noted at the second right interspace at the sternal border. The aortic second sound was muffled. No diastolic murmur, abnormal pulses, or evidence of congestive failure were noted. He had a normal sinus rhythm.

The electrocardiogram showed significant change in that the T waves in the left ventricular leads were more deeply inverted than in the previous tracing. The intrinsicoid deflection time in V-6 was still within the normal range.

The chest x-ray showed no change from the previous study of January 21, 1952, regarding a concentric hypertrophy of the left ventricle without overall cardiac enlargement. Dilatation of the ascending aorta was again noted. Fig. I.

The ward physician considered the diagnosis of aortic stenosis and requested cardiac fluoroscopy which showed calcification in the aortic valve region. However, aortic stenosis was not diagnosed, probably because the classic diagnostic triad was not found.

The discharge diagnosis was again arteriosclerotic heart disease with angina pectoris and left ventricular hypertrophy.

THIRD ADMISSION — November 10, 1955.

The attacks of angina and dizziness had continued. In addition he described episodes of syncope or blackout spells which had increased in severity in the two weeks prior to admission. He had experienced dyspnea on rather mild, less than ordinary exertion, and 3 pillow orthopnea. He had been taking digitalis sporadically for some months prior to this admission. At this admission the history was obtained of a prolonged, three year episode of "slow fever" but without joint symptoms which occurred while he was in his "teens".

His heart was not enlarged to percussion and no evidence of congestive failure was found. The loud, harsh, systolic murmur in the aortic area without associated thrill or diastolic murmur was again noted. Blood pressure was 130/84 mm. Hg.

The electrocardiogram showed no change from the previous tracing. The phonocardiogram showed the typical "dia-

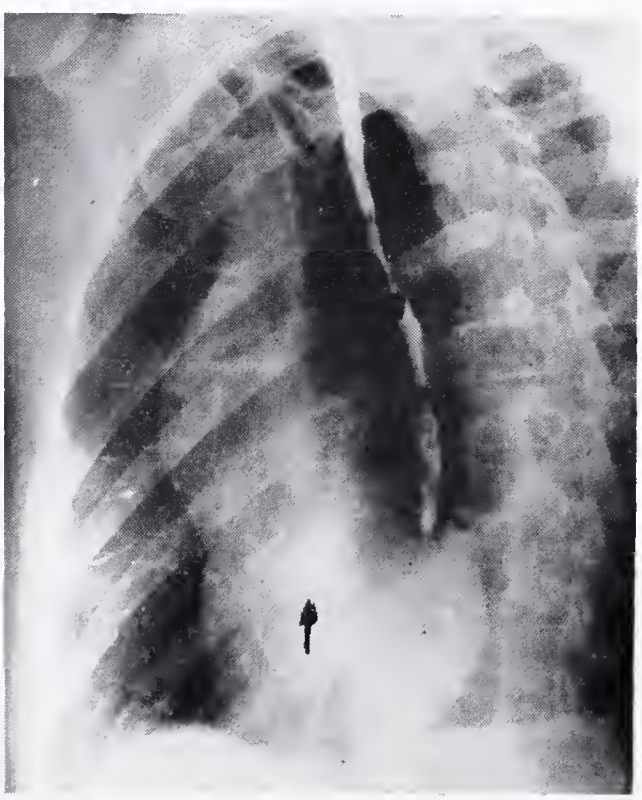
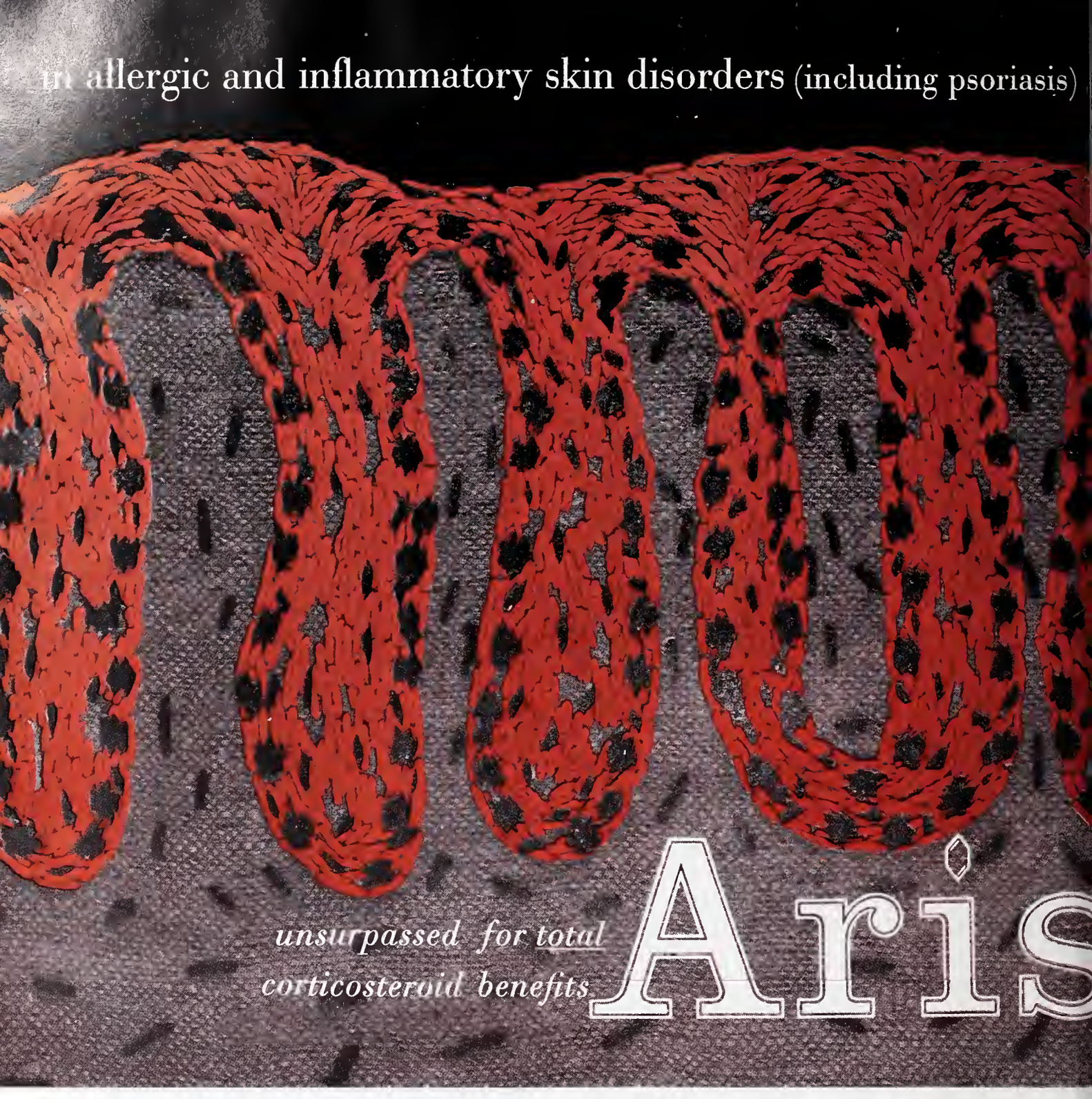


Fig. II. Left anterior oblique X-ray of chest, third admission to hospital.

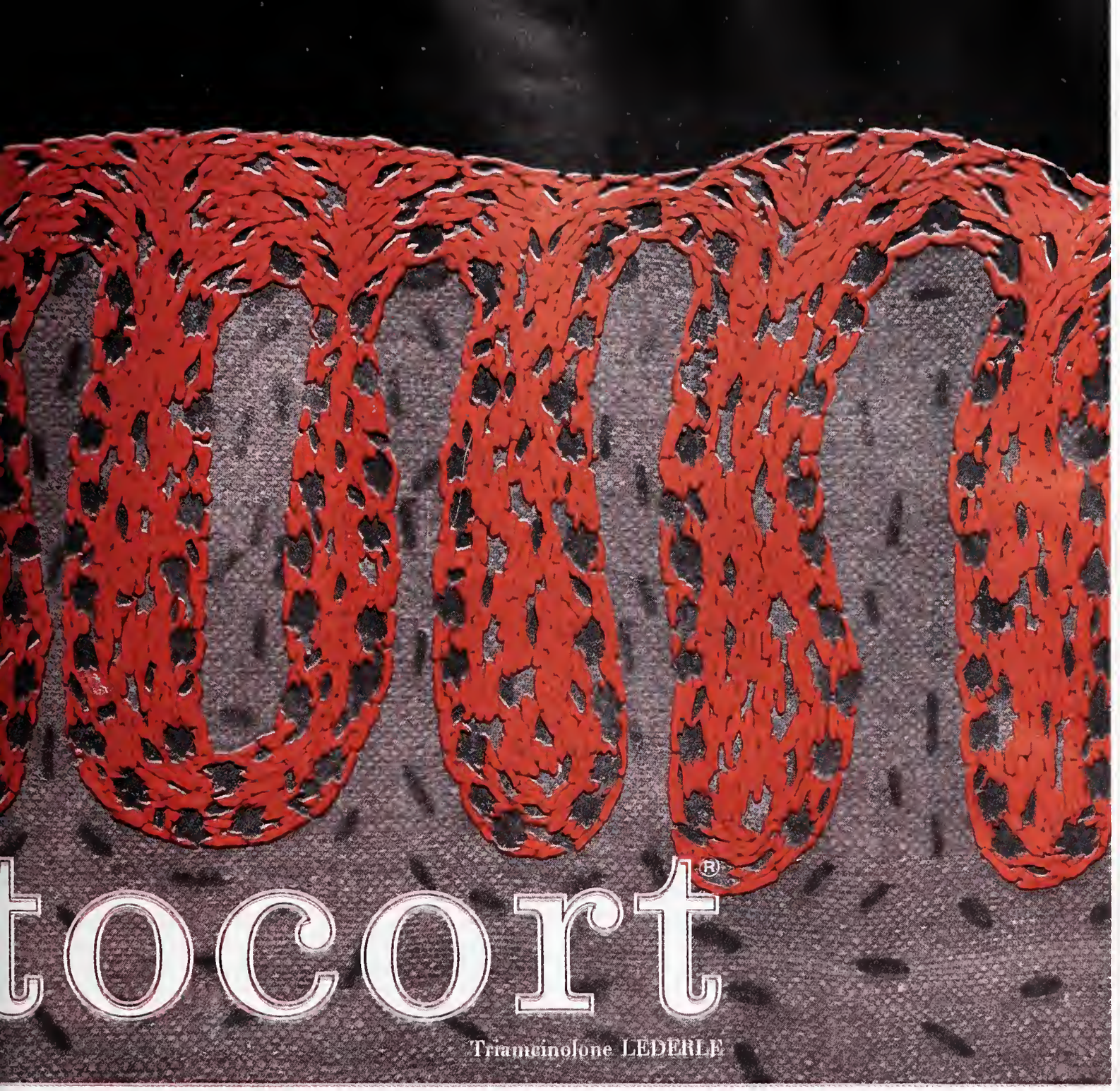


Substantiated by published reports of leading clinicians

- **effective control** of allergic and inflammatory symptoms[1-3,7,8,12-15,17,18]



- **minimal disturbance** of the patient's chemical and psychic balance[1,4-18]



At the recommended antiallergic and anti-inflammatory dosage levels, ARISTOCORT means:

- **freedom from salt and water retention**
- **virtual freedom from potassium depletion**
- **negligible calcium depletion**
- **euphoria and depression rare**
- **no voracious appetite — no excessive weight gain**
- **low incidence of peptic ulcer**
- **low incidence of osteoporosis with compression fracture**

Precautions: With ARISTOCORT all traditional precautions to corticosteroid therapy should be observed. Dosage should always be carefully adjusted to the smallest amount which will suppress symptoms.

After patients have been on steroids for prolonged periods, discontinuance must be carried out gradually over a period of as much as several weeks.

Supplied: 1 mg. scored tablets (yellow); 2 mg. scored tablets (pink); 4 mg. scored tablets (white); 16 mg. scored tablets (white).

Diacetate Parenteral (for intra-articular and intrasynovial injection). Vials of 5 cc. (25 mg./cc.).

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Fig. III. Right anterior oblique planigram.

mond shaped" murmur of aortic stenosis with indistinct or absent aortic sounds.

The position of the calcified aortic valve in the left anterior oblique view, the post stenotic dilatation of the aorta, and the concentric hypertrophy of the left ventricle are shown in Fig. II. The calcified aortic valve is shown more clearly in the right anterior oblique planigram. Fig. III.

The patient was again treated symptomatically and digitalis was discontinued because he showed no evidence of congestive failure. The discharge diagnosis was rheumatic heart disease with aortic stenosis and arteriosclerotic heart disease with angina pectoris.

FOURTH ADMISSION — June 26, 1956.

He was admitted this time because of more prolonged episodes of retrosternal pain.

Cardiovascular examination showed his blood pressure to be 130/80 mm. Hg. A loud, harsh, grade V systolic murmur in the aortic area with radiation into neck vessels was noted. A low intensity, high pitched diastolic murmur was also heard in the aortic area. With the patient upright and leaning forward a faint systolic thrill was palpable in the aortic area. A few basilar rales were heard bilaterally. Hepatomegaly or peripheral edema were not found.

The electrocardiogram showed no change from the previous tracing.

Slight enlargement of the cardiac silhouette and minimal pulmonary congestion were noted on the x-ray.

He was digitalized with clearing of the pulmonary congestion and some decrease in heart size on subsequent x-ray examination. The discharge diagnosis was rheumatic heart disease with aortic stenosis, aortic insufficiency, left ventricular hypertrophy and angina pectoris.

FIFTH ADMISSION — April 23, 1957.

He was admitted because of increasing cough, dyspnea on exertion, and orthopnea for three months prior to admission. He was now having angina decubitus.

Cardiovascular examination showed findings to be the same as on the previous admission except that the aortic diastolic murmur was not heard.

X-ray of the chest showed no change from that on previous admission.

The electrocardiogram showed more wide spread and deeper inversion of T waves, but the intrinsicoid deflection time in V-6 was still just under 0.04 second. Fig. IV.

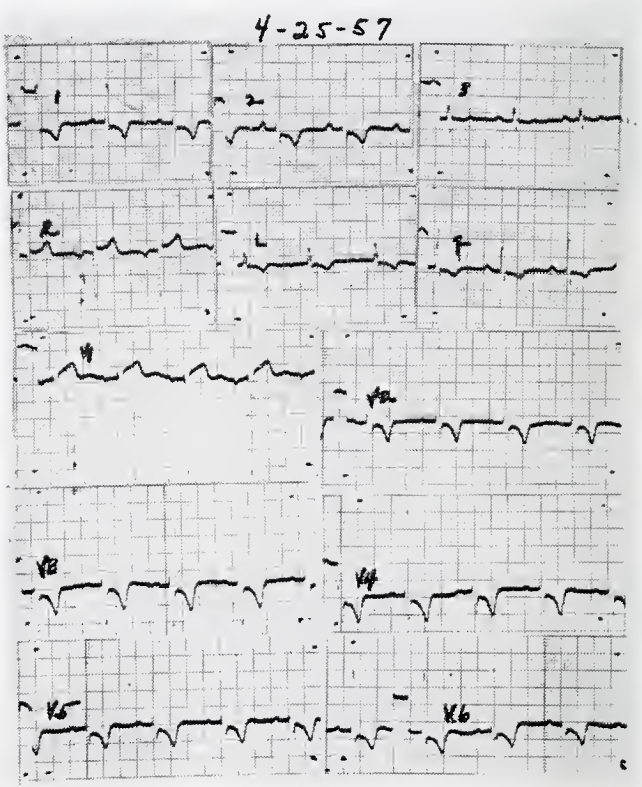


Fig. IV. Electrocardiogram, fifth admission.

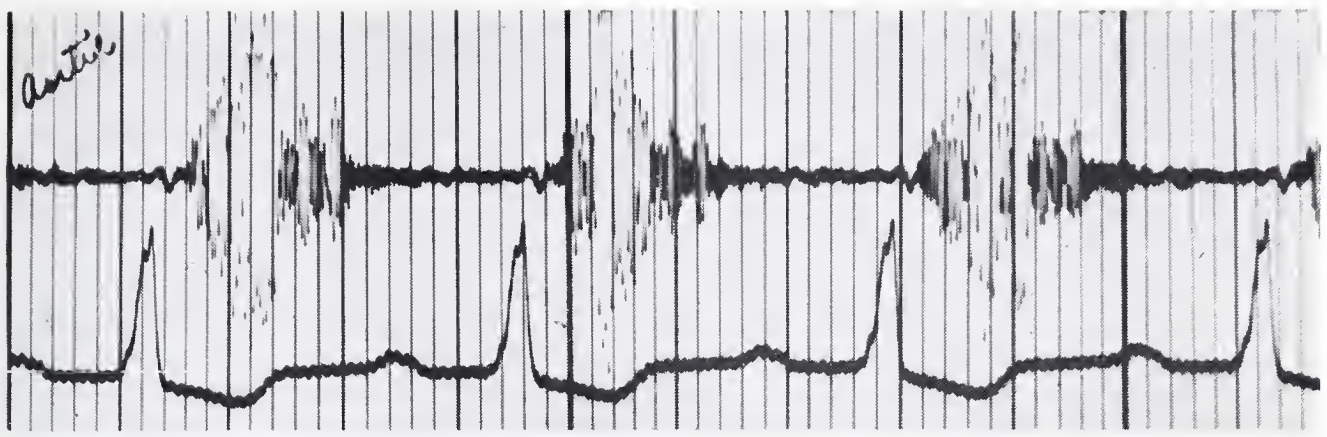


Fig. V. Phonocardiogram, final admission.

The discharge diagnosis was rheumatic heart disease with aortic stenosis and arteriosclerotic heart disease with angina pectoris.

This on again, off again, diagnosis of arteriosclerotic heart disease reflects the impossibility in determining clinically whether the angina pectoris in elderly patients with aortic stenosis is due to the stenosis or due to associated coronary artery disease.

SIXTH ADMISSION — November 22, 1957.

He had been fairly well until three weeks before admission when he had his first attack of paroxysmal nocturnal dyspnea. Since that time severe orthopnea required him to sleep sitting up. He had had no peripheral edema.

Cardiovascular examination revealed his blood pressure to be 108/58/50 mm. Hg. There were a grade IV, harsh aortic systolic murmur with midsystolic accentuation, systolic thrill in aortic area, and absent aortic second sound. A grade I aortic diastolic murmur was heard. The apical impulse was bounding. There were moist rales in both lung bases, worse on the left, but no hepatomegaly or peripheral edema were noted.

Electrocardiogram showed no changes from previous tracing.

X-ray of the chest showed congestive change at bases bilaterally and a small area of pneumonitis at right cardiophrenic angle. After a period of treatment a repeat x-ray showed clearing of the changes in the lungs and a decrease in the transverse diameter of his heart from 142 mm to 127 mm.

Mercurial diuretics in addition to digitalis and bed rest were necessary before there was slow clearing of his pulmonary congestion. His weight decreased from 133 lbs. to a low of 123 lbs. while in the hospital. He had an episode of influenza, or atypical pneumonia during his fourth week in the hospital, with very slow recovery.

During this admission consultation with cardiac surgeon was obtained and he felt that the patient was a poor risk for aortic valvulotomy because of "the presence of severe angina, congestive failure, and marked calcification of the aortic valve". He felt that the operation would require hypothermia or by-pass techniques to obtain the best results, and that even with these, the operative risk would be too high. It was obvious that the time for operative intervention in this case was past.

SEVENTH ADMISSION — January 25, 1958.

He did fairly well for about one week following discharge and then again began having paroxysmal nocturnal dyspnea and orthopnea so that he was unable to sleep. He had had a chill followed by recurrent chest pains for two days prior to admission.

Examination showed his blood pressure to be 110/60 mm. Hg. Dullness was noted in left base and moist crackling rales were heard in both lung bases. A grade IV aortic systolic murmur and thrill and grade I aortic diastolic murmur were noted. There was no hepatomegaly or peripheral edema.

X-ray of his chest showed an area of pneumonitis in the left lung with superimposed congestive changes and bilateral pleural effusion in both bases.

Phonocardiogram recorded at aortic area showed the typical systolic murmur with midsystolic accentuation and a high pitched decrescendo diastolic murmur. Fig. V.

He became relatively asymptomatic in spite of persistence of abnormal x-ray findings in his lungs, and he was sent home on leave of absence.

He returned from leave early complaining of more severe dyspnea, nausea, vomiting and diarrhea, and was considered to have digitalis intoxication. He also had a temperature elevation and a cough productive of brownish colored sputum.

Blood pressure was 110/54 mm. Hg. He was febrile, appeared acutely ill, and was perspiring freely. There were findings of bilateral pleural effusion with rales above the areas of dullness. The aortic systolic murmur and thrill were unchanged, but the aortic diastolic murmur was now a grade III. Normal sinus rhythm with occasional premature contractions were noted. The liver was palpable 5 cm. below the right costal margin, but there was no peripheral edema.

The x-ray finally showed marked cardiac enlargement; 162 mm. transverse diameter of heart as compared to his expected upper limit of normal of 136 mm. There was a slight increase in the bilateral pleural effusion.

He became very apprehensive, fearful of impending death, and hyperventilated with a respiratory rate of 34 to 40 per minute in spite of the fact that only minimal rales were heard in his lungs. At times he perspired excessively. Morphine and oxygen were given in a futile effort to control these terminal symptoms. He expired on April 1, 1958.

We have noted this difficult to adequately describe picture developed two to five days before death in several patients with aortic stenosis. In most of them there would be very little other objective changes in the cardiovascular system or state of compensation to accompany the picture. We have assumed that it is the result of forward failure with cerebral ischemia, although there have been no studies made to confirm this.

SUMMARY

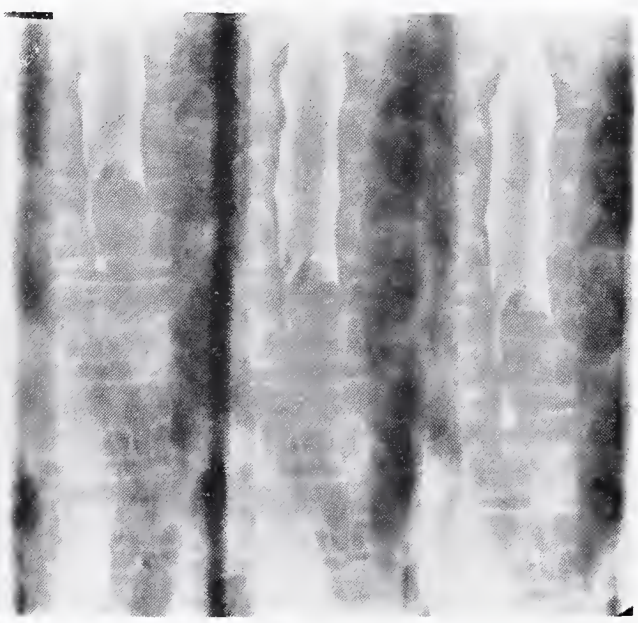
This case illustrates the usual or typical history of the natural course of aortic stenosis. There was a questionable history of rheumatic fever as a young boy, followed by an asymptomatic period of approximately 45 years. He had an onset of symptoms of angina pectoris dizziness and dyspnea on exertion approximately 8 years before death. The diagnosis of aortic stenosis, although suspected earlier, was not made until approximately three years before his death. His symptoms progressively became more severe and responded slowly and incompletely to all therapy. An inconstant aortic diastolic murmur was first noted approximately 18 months before his death, and became a constant finding approximately 6 months before death. A systolic thrill in the aortic area was first noted 21 months before death. Syncope was noted approximately 30 months before death. He never showed the "classic small, plateau or anacrotic pulse", and his blood pressure readings were not helpful in making the diagnosis.

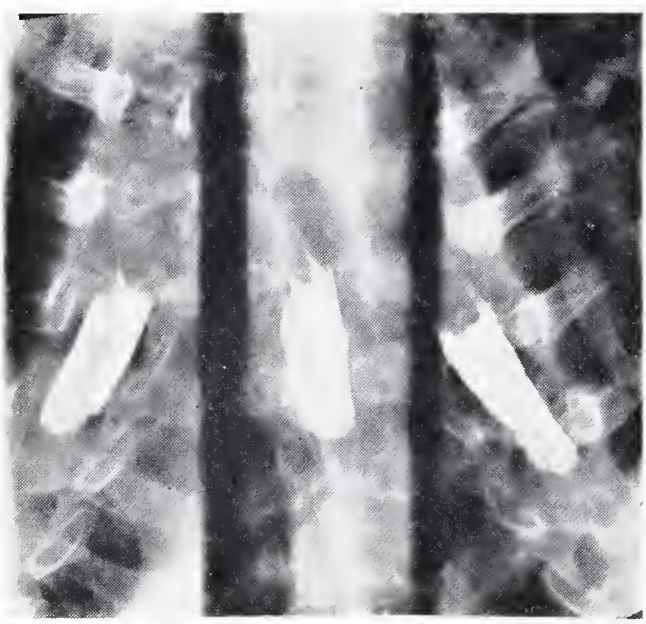
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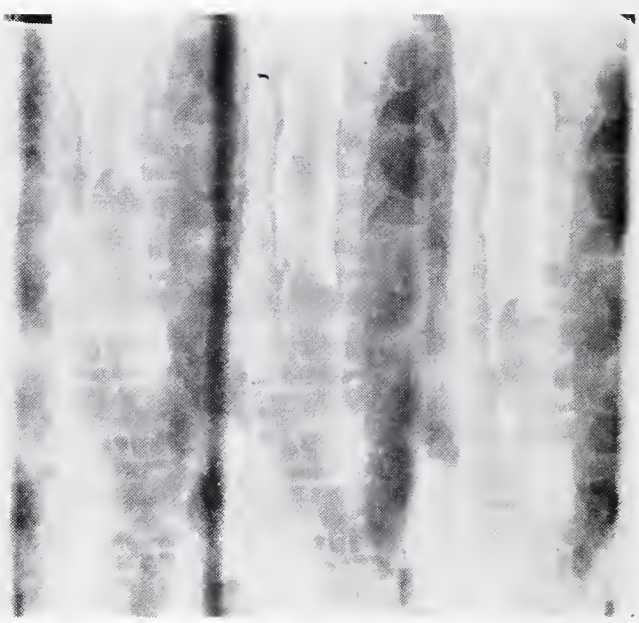
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What Is Your Diagnosis?







FOR ANSWER SEE PAGE 468

Arkansas Public Health at a Glance

An increasingly familiar sign along the highways of Arkansas is one found on the outskirts of certain towns reading, "WATER SUPPLY APPROVED — STATE HEALTH DEPARTMENT." This is not some meaningless piece of civic adornment, but rather a recognition of public achievement to be regarded with pride by all towns earning the privilege. There are presently 28 towns that can display this sign.

On March 19, 1953 the first highway signs stating "WATER SUPPLY APPROVED—STATE HEALTH DEPARTMENT" were issued in accordance with the policies and procedures adopted by the Arkansas State Board of Health and the Arkansas Water and Sewage Conference. A city must make application for approval to display the sign and then must receive an acceptable rating on a survey of the water works system and other pertinent factors by the State Health Department. This survey stresses compliance with four basic factors: 1) compliance with the regulations of the department pertaining to public water supplies; 2) the responsible personnel having supervision over the water utility must be licensed by the Arkansas Water and Sewage Conference; 3) compliance with the Public Health Service Drinking water Standards for bacteriological quality for the last six-month period; and 4) effective enforcement of a plumbing code which is equal to the State code.

Issuance of permission to a town to display this sign does not assure the privilege will be permanent. All those approved must continue to meet the high standards set forth. Approval has been withdrawn from four cities for failure to continue to satisfy all requirements. The following towns now have on display the sign WATER SUPPLY APPROVED — STATE HEALTH DEPARTMENT.

town	date approved
Little Rock	3-19-53
Jonesboro	3-19-53
Pine Bluff	3-19-53
Marianna	3-19-53
West Helena	3-19-53
Marvell	6-23-53
Magnolia	1-24-54
Holly Grove	4- 8-54
Morrilton	9-16-54
Newport	1-25-55
Benton	2- 3-55
Fayetteville	2- 8-55
Wynne	2- 9-55
Hot Springs	4- 1-55
Forrest City	11- 6-55
Helena	1- 1-56
Fordyce	4-10-56
Batesville	4- 7-56
Mountain Home	4-18-56
Sheridan	5-17-56
Malvern	11-20-56
Fort Smith	12- 6-56
Clarendon	6- 4-57
Bentonville	3-27-58
Rogers	9-12-58
Brinkley	12- 8-59
Stuttgart	12- 8-59
Texarkana	12-29-59

A city can certainly have a water supply free of harmful bacteria without meeting all the conditions necessary for displaying one of these signs. Water supplies of acceptable quality are available to 198 communities and only four are presently under an order to boil all drinking water.

Editorial

Again, the Service Contract!

FRANK G. KUMPURIS, M.D.

A service contract between the Arkansas Medical Society and the Arkansas Hospital Association can well affect one's way of practice of medicine in Arkansas; although this action is motivated by sincere intentions, the result in this case will be bad.

There has been an overwhelming disapproval in many different groups in the state who listened to and considered the service contracts of the Blue Cross - Blue Shield. Despite their disapproval of these service contracts, the issue of the service plan for the over 65 years age group has again been raised.

A subject most prominent in Congress today is the Forand Bill and its socialistic threat by its widespread coverage of everyone over the age of 65 years. The A.M.A. has asked each state to try and counter this with some local coverage for the care of this aged group. Beside this, the A.M.A. is asking that the bill remain in committee until after the President's committee on the aged reports in 1961. The objections to the Forand Bill are numerous but basically it proposes socialized medicine.

Why should so many members of the State Medical Society on different days, in separate organizations, with separate discussions, all come to the same conclusion and unanimously disapprove this service contract? The threat of socialized medicine is not new to the practicing physicians in Arkansas. This is not the first time that the subject has been mentioned and considered here, and this time will not be any different than thirteen years ago when Arkansas was among the most active in the United States to combat the threat of a major socialistic bill in the Congress. Let us fight this threat with all means available. Thirteen years ago we faced this problem with the sincere feeling that the real answer to the threat was to clean and keep clean one's own house and practice good public relations in the everyday care of the patient. Never did anyone even consider relinquishing any of the privileges of private practice as a compromise to forestall a threat of socialized medicine.

As a result, Arkansas medicine is an art which is well practiced and which is respected by the patients with few if any major grievances; there has been excellent care of the indigent as well as the private patient. We have heard loud grumbling in states like California, Oregon, Michigan, New York and many other states where service contracts exist. Why injure the fine quality of practice in Arkansas by submitting to an unwanted and unneeded service contract, a most unpopular instrument in the states where it has been tried?

Why should we in 1960 consider a compromise of our liberties and freedoms and become the servants of an insurance company when we have done nothing for which to be ashamed and have done much for which we can be proud. Let us not forget the dignified manner in which we confronted the threat of socialism in 1948, and again dedicate ourselves to sincere practice of medicine, but with the preservation of the freedoms which allow us to remain individuals, so that we can practice as we have always done in Arkansas.

Why does the Arkansas Blue Cross—Blue Shield desire a service contract? It is a great surprise that they wish to have this service contract reconsidered by the House of Delegates of the Arkansas Medical Society after it was rejected by so many medical groups in Arkansas. Does the board of the Blue Cross - Blue Shield wish to place this service contract in the House of Delegates with the hope that a

*Waldon Building, Little Rock, Ark.

favorable decision toward the service contract can be obtained? When asked at the latest Council Meeting of the Arkansas Medical Society why the Blue Cross - Blue Shield could not eliminate the medical and surgical service portion of the contract and submit the same contract as an indemnity contract, they answered that it would lose its effectiveness. This is ridiculous.

It appears that to satisfy the Arkansas Hospital Services, Inc., the physicians would become the tool and employee of the service contract, the policeman of the Arkansas Hospital Services, Inc., and eventually have the door opened for the next logical step, a service contract for all age groups. The Arkansas Medical Services, Inc. would certainly have an unfair advantage over their competitors who are private firms paying taxes. Second, they would have a means of increasing the rates as hospital costs increased, but they never would be concerned with the medical and surgical benefits, because once the Society accepts the program, the individual is meaningless; if he does not participate, the policyholder will go to a physician who does participate. What a terrific freedom to give to any insurance company! We have conducted ourselves honorably in our practices, and in a manner which has resulted in good medicine in this state. Fight the service contract.

RESOLUTION

On January 3, 1960 we, the members of Garland County-Hot Springs Medical Society, as well as the Citizens of Hot Springs and State of Arkansas, had the misfortune of losing our good friend, whom we all admired and loved.

Francis Samuel Tarleton was born September 28, 1893 in Jeanerette, Louisiana. He received his B.S. Degree at Springhill College, Mobile, Alabama in 1913 and his M.D. Degree at Tulane Medical School, New Orleans, Louisiana in 1917. He had two years Internship at City Hospital, St. Louis, Missouri after which he practiced Medicine in his home town for five years. Dr. Tarleton served as First Lieutenant in the Army Medical Corp until the end of World War I, after which he took Special Work in Eye, Ear, Nose and Throat Specialty at New York City Medical School. He came to Hot Springs in 1925 and continued to practice his Specialty until his death.

Bob, as his friends affectionately called him, was past president of the Garland County - Hot Springs Medical Society, charter member and past president of the Hot Springs Kiwanis Club, past president of Saint Joseph Hospital Staff, member of the Ouachita General Hospital Staff, and for many years was in charge of the Eye, Ear, Nose and Throat Charity Clinic at the Leo N. Levi Hospital. He was member of the Catholic Mens Club and a member of St. Johns Catholic Church. He also was a member of the Knights of Columbus and for many years was Chairman of the Board of the Good Shepherd Convent.

We extend our sympathy to Bob's wife, Gladys, his son, Frank, and his daughter, Patricia, as well as his grandchildren. They can all be proud to have had, for so long, a father, husband and grandfather who made such fine contributions to the community in which he lived.

Garland County-Hot
Springs Medical Society

By James H. French, M.D.
Secretary

MEDICINE IN THE NEWS

A memorial library has been established at the North Hills Exceptional Children's School in the name of James T. Wortham, M.D. Dr. Wortham was a member of the governing board from the beginning of the present school. He was the first president of the board, and his interest and helpful guidance added much to the success of the school.

PATTERN OF MEDICAL STUDENT EMPLOYMENT

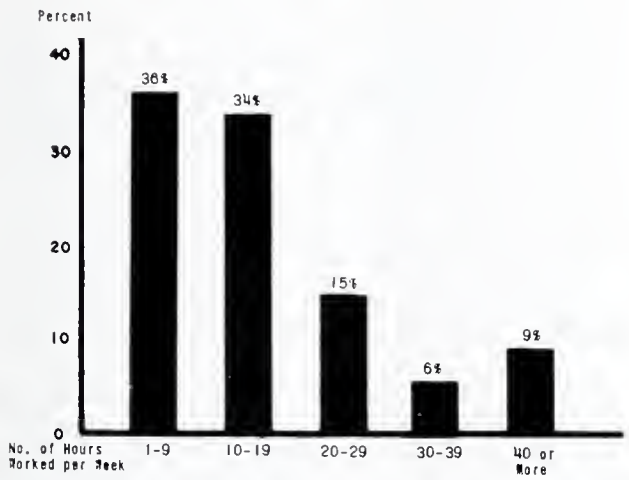
Considerable discussion has taken place among medical educators as to the effect of student employment on academic proficiency and financial standing. Particular concern has been expressed that if the student works, he should do so in a position which contributes to his over-all educational goal. The data on the type of work done by medical students in the graduating class of 1959 are summarized in the table below:

TYPE OF WORK PERFORMED BY MEDICAL STUDENTS

	(N=2,856) All Students		Students Whose Liabilities Exceed Assets (N=1,157)		Students Whose Assets Exceed Their Liabilities (N=1,699)	
	N	% of Total	N	% of Total	N	% of Total
1. Teaching or Research in Medical School	367	13%	146	13%	221	13%
2. Other Work Related to Medical Education						
a. Paid externship	1,006	35%	381	33%	625	37%
b. Laboratory technologist or assistant in medical school	657	23%	291	25%	366	22%
c. Medical work in medical school other than laboratory technologist or assistant	211	7%	90	8%	121	7%
d. Medical work outside school or hospital	102	4%	34	3%	68	4%
e. Armed Forces senior medical student program	10	< 1%	5	1%	5	< 1%
		82%		83%		83%
3. Work Not Related to Medical Education						
a. Clerical, including sales	151	5%	72	6%	79	5%
b. Labor, skilled or unskilled	130	5%	60	5%	70	4%
c. Non-professional work related to patient care in hospitals	94	3%	40	3%	54	3%
d. Non-medical work in medical school	57	2%	16	1%	41	2%
e. Professional occupations (dentist, pharmacist, etc.)	40	2%	13	1%	27	2%
f. Intellectual occupations (tutor, statistician, etc.)	31	1%	9	1%	22	1%
		18%		17%		17%

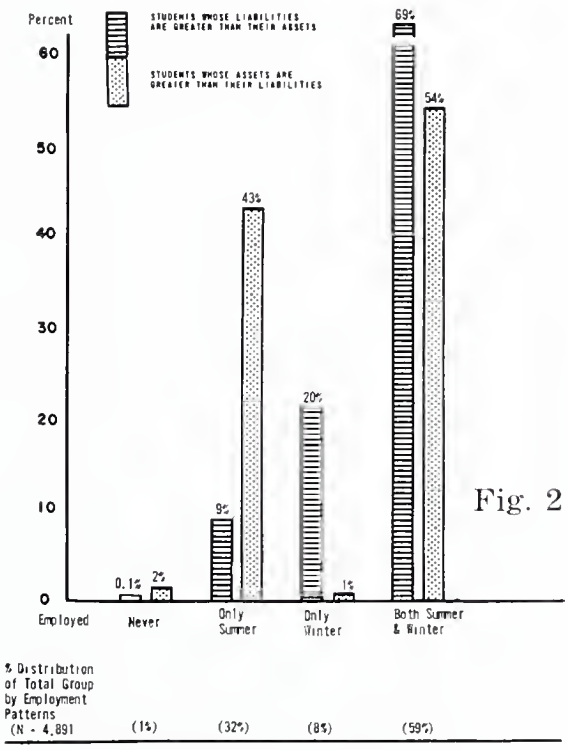
The data on the number of hours worked by these medical students are indicated in the figure below: Fig. 1.

A third factor which determines the student's employment pattern is the period during the year in which he works. Some students use the summer vacation for this purpose, others work all year 'round and still others work only during the academic year. The data on this question from the experience of the 1959 graduating class are summarized in the figure below: Fig. 2.



PERCENTAGE DISTRIBUTION OF NUMBER OF HOURS WORKED BY MEDICAL STUDENTS WHO REPORTED HOURS WORKED (N = 3,272)

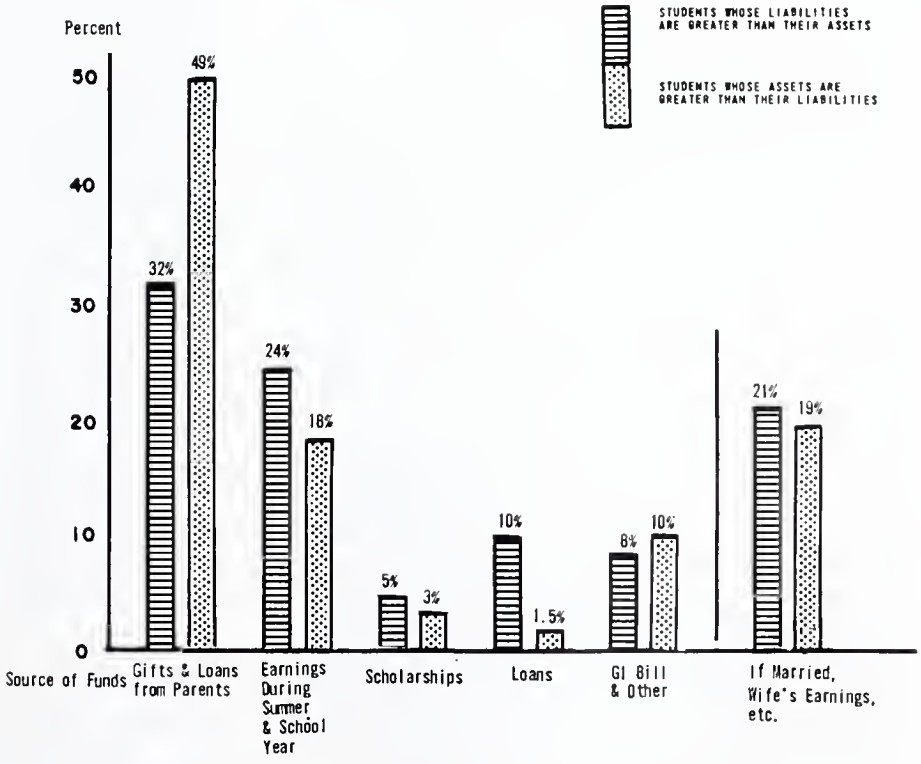
Fig. 1



COMPARISON OF EMPLOYMENT PATTERNS FOR TWO GROUPS OF MEDICAL STUDENTS HAVING DIFFERENT FINANCIAL STANDING

Fig. 2

Finally, it is important to understand the relationship between earnings from employment, on the one hand, and funds from other sources which the student has available to him. The data relative to this question as they pertain to the 1959 graduating class are presented in the figure at right:



COMPARISON OF PATTERNS OF SOURCES OF FUNDS FOR TWO GROUPS OF MEDICAL STUDENTS HAVING DIFFERENT FINANCIAL STANDING

The Month in Washington

Washington, D. C. — Congress appears headed for a showdown this session on legislation for the Federal government to provide medical care for aged persons.

The medical profession and allied groups stepped up their activities in opposition to such legislation as indications mounted that the issue was approaching a crucial stage. Several State Medical Societies planned to send delegations to Washington to personally express their opposition to their Congressmen.

Pressure behind such legislation began to build up early in February.

The Eisenhower Administration announced it was working on three possible programs for providing health care for aged persons in cases of catastrophic—lengthy and costly—illness.

Without amplification, President Eisenhower told a news conference that there was under consideration "a possible change" in the Social Security Act "to run up the taxes by a quarter of a per cent to . . . make greater provision for the care of the aged." The President's statement that "there has been no conclusion reached in the administration" was backed up by Arthur S. Flemming, Secretary of Health, Education and Welfare, in a clarifying announcement.

Flemming said his department was working on two other approaches to what he called a serious problem in addition to the possible revision of the Social Security law mentioned by Mr. Eisenhower. The HEW Secretary said consideration also was being given to: 1) stepped-up Federal assistance under the Federal-state public assistance program, and 2) the Federal government supplementing voluntary insurance programs.

Flemming again expressed opposition to the Forand bill which would increase Social Security taxes by one quarter of one per cent each on employers and employes to provide hospitalization, surgical benefits and nursing home care for Social Security beneficiaries. The Secretary said he wanted to "underline that the position of the administration is opposition to the Forand bill."

Flemming said he hoped to have an administration bill ready to submit in early April to the House Ways and Means Committee where the Forand bill is pending. The Committee is scheduled to take up in late March or early April proposed changes to the Social Security Act.

Proponents of the Forand bill—which is vigorously opposed by the American Medical Association and allied groups—were pointing their campaign toward securing the House Committee's approval of the legislation at that time.

The AFL-CIO, a main supporter of the Forand bill, urged labor union members to write to congressmen on the Committee urging them to vote for it. The AFL-CIO also distributed a pamphlet quoting a handful of physicians as supporting the legislation. But the labor organization didn't mention that the overwhelming majority of doctors oppose it.

The Senate Subcommittee on Problems of the Aged and Aging, headed by Sen. Pat McNamara (D., Mich.), issued on behalf of its Democratic majority a report stating that use of the Social Security program "is the most efficient procedure for providing" health care for older persons.

The AMA and the Subcommittee's Republican minority promptly disputed this conclusion. An AMA statement issued in Chicago said:

"The American Medical Association today sharply disagreed with the recommendation of the McNamara subcommittee regarding government medicine for Social Security beneficiaries.

"Dr. Louis M. Orr, Orlando, Florida, President of the A.M.A., said:

" 'This is a politically inspired committee. Senator McNamara, Democrat from Michigan, has long supported political medicine. The fact is that at the seven subcommittee hearings held throughout the United States, observers heard little support expressed by the older citizens who attended the hearings for government medicine financed by additional taxes and administered through Social Security.' "

The Republican minority stated that testimony before the Subcommittee "proves that it is possible for elderly people to secure private insurance to provide hospitalization and surgical benefits

without any intervention by public authorities."

Sen. John F. Kennedy (D., Mass.), a leading contender for the Democratic nomination for President, introduced legislation similar to the controversial Forand bill but broader in scope. The Kennedy bill would eliminate surgical benefits but would add diagnostic outpatient and home nursing services.

ANNOUNCEMENTS

The North Carolina Pediatric Society Seminar Cruise to Bermuda will begin on May 21st, sailing from Wilmington, North Carolina and returning May 26.

Sailing from Wilmington, N. C. June 5 or from New York June 8 will be the 5th Medical Seminar sponsored by Duke University School of Medicine. This cruise will be to the Baltic visiting, Le Havre, Lenningrad, Helsinki, Stockholm, Copenhagen, and Hamburg.

The Yale School of Medicine will celebrate a century and a half of existence on October 28 and 29 of this year. The occasion will be marked by meetings, exhibitions and addresses suitable to the occasion. Among a notable group of guest speakers will be Sir Howard Florey of Oxford, England. Complete details of the program will be announced later.

Dr. A. R. Hammon today announced the association of Dr. Robert H. Langston in the general practice of medicine in office at 205 West Rush Avenue, Harrison.

Two short or Refresher Courses will be given in early June 1960 by the Children's Hospital of Philadelphia and the Graduate School of Medicine, University of Pennsylvania.

Inquiries should be addressed to Irving J. Wolman, M.D., Director of Post-Graduate Education, the Children's Hospital of Philadelphia, 1740 Bainbridge Street, Philadelphia, 46, Pa.

Obituary

Dr. James T. Wortham, aged 35, of 1 Coffee Pot Lane, Little Rock, died February 2, 1960. Dr. Wortham was a specialist in internal medicine and endocrinology and an associate clinical professor of medicine at the University of Arkansas Medical School.

After serving as a lieutenant in the Navy from 1956 to 1958, Dr. Wortham established a private practice at Little Rock, Dr. Wortham was a native of Waldo and did his pre-medical work at Southern State College and graduated from the University of Arkansas School of Medicine in 1947. He did advanced study at Duke University and the University of Arkansas Medical Center.

Survivors include his wife, Mrs. Jean Biser Wortham, a son and two daughters of Little Rock.

Funeral services were conducted in Trinity Episcopal Cathedral where Dr. Wortham was a member.

Personal and News Items

Dr. J. Harry Hayes, Sr., of Little Rock, was moderator for a panel on Intestinal Obstruction at the February meeting of the Clinical Congress of Abdominal Surgeons in Miami Beach, Florida.

Dr. Ben N. Saltzman has been elected regional director of the Council of Rural Health of the American Medical Association. The region included the states of Florida, Alabama, Mississippi, Louisiana and Arkansas.

Dr. Robert Watson of 2512 North Taylor, Little Rock, was chosen president elect of the Southern Neuro-Surgical Society at a recent meeting at Louisville. The Society is composed of 200 neurosurgeons in 16 states.

Dr. O. J. Kirksey, the only doctor at Mulberry, has been practicing medicine

for over forty years. He started in February of 1920 in Mulberry and after delivering 4,266 babies, he decided to give up obstetrics. However, Dr. Kirksey will continue his other practice at his office.

Dr. James M. Kolb, state president of the Arkansas Medical Society, has returned from Washington, D. C. where he represented Arkansas in a meeting with representatives of the Department of Defense.

More than 200 friends gathered at Macedonia School Auditorium to honor Dr. W. J. Hunt, country doctor who has served his community for 57 years. This also was the occasion of the doctor's 83rd birthday.

Dr. John R. Sloan of Garner observed his 89th birthday, February 17, 1960.

Dr. A. L. Peacock, well-known doctor of Gentry, celebrated his 90th birthday, February 11. A special program and luncheon was held as a tribute to him.

Dr. R. B. Robbins of Camden, a trustee of the American Medical Association and a former vice president of the AMA, addressed the North Texas Druggists Association at their annual banquet in February.

Dr. W. T. Lowe, who served as one of Pine Bluff's leading medical men for 50 years, announced his retirement in December. An appreciation banquet was held in his honor with 200 of his friends and associates attending.

Tribute to Dr. Milton Lubin, Turrell physician was paid in January at a dinner given in his honor by citizens of Turrell. Dr. Lubin was presented a plaque in recognition of his service to the community.

Proceedings of Societies

Dr. S. W. Chambers was elected president of the Baxter County Medical Society at a meeting held in February. Dr. J. F. Guenthner, was elected vice president and Dr. Walter Guinee was named secretary-treasurer. Named as first delegate to the Arkansas Medical Association was Dr. B. N. Saltzman and Dr. James Dunbar was named alternate delegate.

Members of the Sebastian County Medical Society and other physicians within a 100 mile radius of Fort Smith went back to school for a day January 26. The occasion was the annual scientific meeting of the local Medical Societies at which time the area physicians get to brush up on the latest techniques of medicine and surgery.

Don W. Russell, director of the Arkansas Rehabilitation Service, was guest speaker at a meeting of the Union County Medical Society at 7:00 p.m., February 2.

Pulaski County Medical Society conducted a panel on health problems in the Little Rock public schools January 28, 1960. The group met in the school board offices, 8th and Louisiana, Little Rock.

Lawrence County Medical Society met Friday, January 15 in Walnut Ridge and elected officers for the year. Dr. Ralph Joseph, Walnut Ridge, was elected president of the group. Dr. J. J. Whittington also of Walnut Ridge was elected vice president, Dr. Lloyd Gregory of Imboden was elected secretary-treasurer, and Dr. J. B. Elders was elected as delegate to the State Association for this year.

The Craighead-Poinsett County Medical Society met February 3rd at the Hotel Noble in Jonesboro with Dr. A. B. Weir, Jr. of Memphis as guest speaker. Dr. Weir's subject was "Controversial Problems in Coronary Heart Disease."

The Lee County Medical Society met on February 5th in Marianna with guests from Forrest City, Brinkley and West

Memphis for a program furnished by the Arkansas Cancer Committee. Dr. Masauki Hara, Professor of Surgery at the University of Arkansas School of Medicine talked on "Gastro - Intestinal Cancer."

DELEGATE'S REPORT of the AMERICAN MEDICAL ASSOCIATION Thirteenth Clinical Meeting December 1-4, 1959 Dallas, Texas

The outstanding feature of the House of Delegates of the American Medical Association was the addresses made by Senator Lyndon B. Johnson, Johnson City, Texas, Majority Leader in the United States Senate, and Speaker of the United States House of Representatives, Sam Rayburn, of Houston, Texas. Both made excellent talks. Senator Johnson kept the House "spellbound" for forty-five minutes. The theme of his talk was the restoration of the American way of life and the effort on the part of each individual necessary to bring this about. Even the "Yankees" from up North accepted his speech without criticism. I had a number of them remark that that was not a Southern Democrat talk, but a Northern Republican. Our reply was that it was neither, but that of a true American.

In the Journal of the American Medical Association, December 26, 1959, pages 2333 to pages 2335 inclusive, is a detailed report of actions taken. These include:

1. A third paragraph to the recommendations in the report of the Commission on Medical Care Plans approved previously in Atlantic City last June.

> "Lest there be any misinterpretation, we state unequivocally that the American Medical Association firmly subscribes to freedom of choice of physician and free competition among physicians as being prerequisites to optimal medical care. The benefits of any system which provides medical care must be judged on the degree to which it allows of, or abridges, such freedom of choice and such competition."

2. Physician-Hospital Relations. The House received twelve resolutions on the subject of relationships between physicians and hospitals. It reaffirmed the 1951 "Guides for Conduct of Physicians in Relationships with Institutions." It also declared that "all subsequent or inconsistent actions are considered superceded."

The House also accepted recommendations that (1) the House of Delegates acknowledge the need to strengthen relationships with hospitals by action at state and local levels, (2) the Board of Trustees of the Association continue to maintain liaison with the Board of Trustees of the American Hospital Association, and (3) the Council on Medical Service review this entire problem to ascertain if there have been actions inconsistent with the 1951 Guides.

3. Scholarship Program. To help meet the need for an increasing number of physicians in the future, the House approved the creation of a special study committee which was asked to:

> (1) Present a scholarship program, its development, administration and the role of the American Medical Association in fulfilling it.
>
> (2) Ascertain the maximum to which medical schools could expand their student bodies while maintaining the quality of medical education.
>
> (3) Ascertain what universities can support new medical schools with qualified students and sufficient clinical material for teaching—either on a two year or a full four year basis.
>
> (4) Investigate the securing of competent medical faculties.
>
> (5) Investigate financing of expansion and establishment of medical schools.
>
> (6) Investigate financing of medical education as to the most economical methods of obtaining high quality medical training.
>
> (7) Develop methods of getting well-qualified students to undertake the study of medicine.
>
> (8) Investigate the possibility of relaxing rigid geographic restrictions on the admission of students to medical schools.

The House urged that the special committee be implemented promptly with

adequate funds and staff so that it may make an initial report by June, 1960.

4. Miscellaneous Actions covered forty-four resolutions and a large volume of annual, supplementary and special reports. These are reported in the Journal of the American Medical Association referred to above.

Your delegate is proud of the fact that he represents one of the leading state medical societies of the nation in the House of Delegates of the American Medical Association. There is only one field that I have to drop my head in shame and that is the matter of the American Educational Foundation. Even Arizona, one of the smallest states in the union, gave $9,263.00 this past year to this foundation. California, one of the largest states, gave $156,562.00.

It is hoped that, through the perfection of the organization of the Medical Education Foundation of Arkansas, this will be corrected.

J.M.K. cc

Respectfully submitted,
James M. Kolb, M.D.

* * *

Contributors to the American Medical Education Foundation From the State of Arkansas during December 1959:

C. W. Anderson, Pine Bluff	$ 25.00
W. R. Brooksher, Fort Smith	50.00
H. K. Calkins, Smackover	5.00
James H. Chesnutt, Hot Springs	50.00
Wm. W. Christenson, Little Rock	33.75
W. G. Cooper, Little Rock	33.75
Hal Dildy, Little Rock	10.00
Austin H. Doren, Smackover	10.00
L. G. Fincher, Sr., El Dorado	8.00
H. D. Gray, Paragould	20.00
H. F. Gray, Little Rock	13.50
James W. Headstream, L. Rock	5.00
Ulys Jackson, Harrison	5.00
M. J. Kilbury, Sr., Little Rock	13.50
G. H. Landers, El Dorado	7.50
John Laurens, Little Rock	13.50
Sanford C. Monroe, Pine Bluff	25.00
Joseph A. Norton, Little Rock	100.00
Joseph A. Norton, Little Rock	13.50
Warren S. Riley, El Dorado	3.00
Guy U. Robinson, Dumas	150.00
Wilma C. Sacks, Fayetteville	25.00
Vestal B. Smith, Marked Tree	5.00
Ewell I. Thompson, Little Rock	10.00
Eldon Tommey, El Dorado	7.50
Joseph Ward, Little Rock	10.00
Harry M. White, Rogers	5.00
David Yocum, El Dorado	20.00
David Yocum, El Dorado	7.50
Woman's Auxiliary to the First Councilor District Medical Society	100.05
Woman's Auxiliary to the Boone County Medical Society	5.00
Woman's Auxiliary to the Hempstead County Medical Society	7.00
Woman's Auxiliary to the Jefferson County Medical Society	8.00
Mrs. J. A. Powers, Harrison	2.00
Woman's Auxiliary to the Pulaski County Medical Society	14.75
Woman's Auxiliary to the Sevier County Medical Society	2.00
	$823.80

Contributors to the American Medical Education Foundation From the State of Arkansas during January 1960:

Thomas M. Durham, Sr., H. Sprgs.	$ 12.50
Eldon Fairley, Osceola	50.00
Julian Fairley, Osceola	50.00
W. Payton Kolb, Little Rock	50.00
Stuart B. McConkie, Hot Springs	12.50
Mrs. J. G. Wilson, Keo	1.00
	$176.00

New Members . . .

Miller County Medical Society reported a new member in January. He is **Dr. Richard J. Schneble,** whose specialty is Internal Medicine. His office is at 401 East 5th, Texarkana. A native of Dayton, Ohio, he received his preliminary education at the University of Dayton and was graduated from the Northwestern University School of Medicine, Chicago, Illinois in 1944. Dr. Schneble practiced at Ponca City, Oklahoma, from 1951-1953 and has been at his present location for 6 years.

Dr. Max Baldridge has been accepted for membership in the Miller County Medical Society, he is a native of Cle-

burne County and received his preliminary education at Arkansas State Teachers College. His M.D. degree was obtained from the University of Arkansas School of Medicine in June 1938. Dr. Baldridge is an Ophthalmologist and has practiced in Texarkana for the past 10 years. His office address is 721 Olive Street.

A new member of the Miller County Medical Society is **Dr. Eugene H. Wicker.** Dr. Wicker was born in Elkhart, Indiana. His preliminary education was obtained at Loyola University, Chicago, Illinois. He was graduated from the University of Loyola School of Medicine in 1942. He practiced from 1950-51 at Marion, Indiana and from 1956-59 at Harlan, Kentucky. Dr. Wicker is a Pathologist with his office at St. Michael's Hospital in Texarkana.

Dr. Walter C. Barnes, Jr., is a new member of the Miller County Medical Society. A native of Rutherfordton, North Carolina, he received his preliminary education from the University of North Carolina, Chapel Hill, from which he received a B. A. degree. His M.D. degree was obtained from the Temple University Medical School in 1948. Dr. Barnes has practiced at his present location for 4½ years. Before coming to Texarkana he practiced at Richmond, Virginia. Dr. Barnes is a surgeon at the Southern Clinic in Texarkana.

Dr. N. J. Becquet is a new member of the Pulaski County Medical Society. A native of Garden City, Kansas, he received his preliminary education at the Arkansas State Teacher College at Conway. His M.D. degree was obtained from the University of Arkansas School of Medicine in 1957. Dr. Becquet has just finished his residency in Ophthalmology and has opened his office at 115 East 5th, Little Rock.

A new member of the Pulaski County Medical Society is **Dr. Charles B. Powell.** A native of Columbus, Kansas he received his preliminary education at the University of Kansas from which he received a B.A. degree. His M.D. degree was obtained from the University of Kansas School of Medicine in 1950. He was in general practice in Kansas from 1953-1956. Dr. Powell then served residency in orthopedics from 1956-1959. His office is at 4300 West Markham in Little Rock.

A new member of the Craighead-Poinsett County Medical Society is **Dr. Henry W. Keisker, Jr.** He is a native of Memphis, Tennessee, and received his preliminary education at the Southwestern College, Memphis, Tennessee. His M.D. degree was obtained from the University of Tennessee in 1951. Dr. Keisker has practiced in Tennessee for the past six years. He is a General and Thoracic Surgeon and will move his practice to Jonesboro in the near future.

Dr. Bill F. Hefley is a new member of the Pulaski County Medical Society. A native of Harrison, Arkansas, he received his preliminary education in Little Rock and was graduated from the University of Arkansas School of Medicine in 1956. Dr. Hefley has practiced in Little Rock for the past three years. His office address is the University of Arkansas School of Medicine.

Dr. Harold B. Hawley is a new member of the Pulaski County Medical Society. A native of Jackson, Mississippi, he received his preliminary education at the Ouachita College in Arkadelphia, Arkansas, from which he received a B.S. degree. He was graduated from the University of Arkansas School of Medicine in 1955. Dr. Hawley has practiced at his present location for the past 2 years. His office address is 8818 Fource Road.

Dr. James T. Crews is a new member of the Pulaski County Medical Society. A native of Mississippi County, he received his preliminary education at Vanderbilt, Nashville, Tennessee. His M.D. degree was obtained at the University of Arkansas Medical School in 1954. Dr. Crews is an obstetrician and Gynecologist with his office at the University of Arkansas Medical Center.

Dr. J. Scott Abercrombie is a new member of the Pulaski County Medical Society. A native of Little Rock, Arkansas, he received his preliminary education at the University of Arkansas and received his M.D. degree from the University of Arkansas Medical School in 1951. Dr. Abercrombie is a pathologist with his office at the Arkansas Baptist Hospital.

Dr. G. Lloyd Hollister, Jr., is a new member of the Pulaski County Medical Society. He is a native of Little Rock, and received his preliminary education from the Vanderbilt University in Nashville, Tennessee. He was graduated from the University of Arkansas Medical School in 1958. He served his internship at the Arkansas Baptist Hospital and now has his office at 223 Main Street in Little Rock.

Dr. Charles D. Avery is a new member of the Nevada County Medical Society. He is a native of Prescott, Arkansas, and received his preliminary education at Hendrix College in Conway. His M.D. degree was obtained from the University of Arkansas Medical School in 1954. Dr. Avery practiced in Fort Knox, Kentucky, from 1956-1957 and Carlisle Barracks, Pennsylvania, from 1957-59. His office is at 411 East 6th, Prescott, Arkansas.

Jack T. Walker is a new member of the Columbia County Medical Society. A native of Stephens, Arkansas, he received his preliminary education from the Southern State College, Magnolia, Arkansas. His M.D. degree was obtained from the University of Arkansas School of Medicine in 1955. He served his internship at St. Vincent's Infirmary. Dr. Walker is now associated with the Wilson Clinic in Magnolia.

A new member of the Boone County Medical Society is **Dr. Robert H. Langston.** He is a native of Little Rock and received his preliminary education at the University of Arkansas. His M.D. degree was obtained from the University of Arkansas Medical School in 1956. Dr. Langston's office is at 205 West Rush in Harrison.

Answer—What Is Your Diagnosis?

SPINE — MENINGIOMA

This 51 year old white male had a history of weakness and spasticity of both lower extremities with hyperactive reflexes and sustained clonus.

Surgery revealed a firm ovoid tumor measuring 2 x 1.5 x 1 cm. arising from meninges along the right postero-lateral aspect of the spinal canal at about the level of the 6th thoracic intervertebral space.

Pathology revealed diagnosis of meningioma.

Films reveal an ovoid, smoothly outlined filling defect within the thoracic spinal canal at the level of T-6, 7. Contrast material flowed around the sides of the defect, particularly on the left and outlined both the top and bottom of lesion. The radiolucent impression of the spinal cord on column of contrast material is displaced to the left. Oblique view gives impression that the lesion is from side of canal and does not expand canal from within as an intramedullary tumor would do. Contrast material flows partially around the attached right side of tumor rather than being pushed aside by it as an extradural tumor would be expected to do.

Woman's Auxiliary

A Benefit Fashion Show and Tea sponsored by the Jefferson County Medical Society was held in February at the Hotel Pines.

* * *

The University of Arkansas Medical Center Auxiliary held a membership meeting in the Medical Center Student Union Conference Room in January honoring members of the Sewing Group, the first active volunteer group of the auxiliary. Coffee was served from 9:30 to 10:00 a.m. Following a business meeting and recognition of the sewing group, Dr. James Dining, professor and head of

the Department of Bio-chemistry, spoke on "The Role of Research in Medical Education."

The Arkansas Medical Assistants Society, in planning their Sixth Annual convention, to be held at the Grim Hotel in Texarkana May 14 and 15, 1960, has discovered that it is not necessary to go beyond the boundaries of the State of Arkansas to obtain good speakers.

Miss Bettye Thompson, convention chairman, reports that a renowned psychiatrist, Dr. Julia Kagan McAdoo of Texarkana, will be a principal speaker.

Dr. McAdoo was born in Novosibirsk, Siberia, and received her elementary and high school education in Harbin, Manchuria. She majored in pediatrics, and obtained her medical degree in Berlin, Germany, under the tutelage of Professor Czerny. After graduation, she completed a residency in psychiatry at Bellevue Hospital in New York City, where she obtained special training in Child Psychiatry under Dr. Lauretta Bender. She later did research in this field under a fellowship from New York University.

Dr. McAdoo is the wife of Dr. H. W. McAdoo, who is engaged in the practice of psychiatry in Texarkana.

Dr. Julia K. McAdoo has chalked up many other enviable honors during her medical career, and the medical assistants of Arkansas are indeed fortunate to have her appear before their convention.

Another speaker of considerable distinction is Mr. Albert C. Barr, Assistant Intelligent Officer at Red River Arsenal near Texarkana. In addition, Mr. Barr is also Chemical, Biological and Radiological Officer at the Red River Arsenal where he is advisor in Civil Defense and performs Civil Defense Liaison between the Red River Arsenal and surrounding communities. His experience and training in military intelligence is quite extensive. During World War II Mr. Barr served with the military intelligence in Germany and France, and was awarded the Bronze Star for heroism while serving in that branch of the service. He also won the Combat Infantry Badge, and his unit received the Presidential Unit Citation.

Other outstanding personalities will appear on the convention's program. Every doctor and medical assistant in the State of Arkansas are invited and urged to attend the Sixth Annual Convention of the Arkansas State Medical Assistants Society. The theme of efficiency through education, stressed at the Third Annual Convention of the American Association of Medical Assistants, held in Philadelphia last year, is certainly emphasized throughout the program, planned for the state convention of the Arkansas society.

Book Reviews

TEXTBOOK OF OTOLARYNGOLOGY by David D. DeWeese, M.D., Clinical Professor of Otolaryngology, University of Oregon Medical School, Portland, Oregon, and William H. Saunders, M.D., Associate Professor of Otolaryngology, The Ohio State University College of Medicine, Columbus, Ohio, illustrated, pp. 464, published by The C. V. Mosby Company, St. Louis, 1960.

This textbook is very well written and illustrated. The material presented is up-to-date. Perhaps one of the greatest areas of interest in otolaryngology is that of hearing loss and there is a good section on the newer techniques of restoring hearing; there is also a chapter on tinnitus. The reviewer particularly commends the authors on discussing speech disorder and rehabilitation of folks with hearing loss.

This book, while not unusual in its format, is recommended to medical students and general physicians as being comprehensive and authoritative.

DRUGS OF CHOICE 1960-1961, edited by Walter Modell, M.D., Director, Clinical Pharmacology, and Associate Professor of Pharmacology, Cornell University Medical College; Attending Physician, New York Veterans Administration Hospital; Associate Visiting Physician, Bellevue Hospital, Member, Poison Control Advisory Board of New York City; Member, Revision Committee, United States Pharmacopeia XVI; Editor, Clinical Pharmacology and Therapeutics, pp. 958, published by The C. V. Mosby Company, St. Louis, 1960.

The organization of this book is somewhat different than many books on pharmacology. Rather than being an encyclopedic index, it collects together the drugs to treat certain symptoms or diseases. For example, there is a section on drugs for heart disease, another section on antitussive agents, etc. The book is organized around the treatment of the patient rather than simply trying to show the chemical relationship between various drugs. The teaching of pharmacology by discus-

sion of related chemical compounds without trying to relate these substances' effect on a human being seems to be to the reviewer a very poor teaching method—this is not the case here. Different chapters are written by different authors. There are good bibliographies. Although this book is incomplete as a textbook in pharmacology, it is a good therapeutic manual and is heartily recommended as such. The title is somewhat misleading in one aspect, calling it DRUGS OF CHOICE 1960-1961; the reviewer would have preferred the deletion of 1961. AK

TUBERCULOSIS ABSTRACTS

Sponsored by
The Arkansas Tuberculosis Association

THE COURSE OF SARCOIDOSIS AND ITS MODIFICATION BY TREATMENT

In a series of 200 patients with sarcoidosis spontaneous remission was common. Antituberculous therapy was not effective but early improvement was noted with corticosteroids.

It is not surprising to find more than one therapeutic regime advocated for a disease so unpredictable as sarcoidosis. This report analyses the effects of treating sarcoidosis with antituberculous or corticosteroid drugs, and the results are contrasted with those observed without treatment.

PATIENTS STUDIED AND METHODS

The material consists of 200 patients in whom clinical and/or radiological features were supported by histological evidence of sarcoid tissue. Patients with histological evidence of local sarcoid tissue reactions, without generalized disease, were excluded. A course of treatment lasted for at least three months.

Antituberculous therapy consisted of a combination of two or three established drugs — streptomycin, isoniazid, or p-aminosalicylic acid — in conventional dosage.

Corticosteroid therapy was given by mouth and/or locally. Cortisone was used initially in daily oral doses of 100 mg., but this was supplanted by 20 mg. daily of prednisolone and more recently by triamcinolone in daily oral doses of 16 mg.

Some patients received antituberculous, and later corticosteroid, therapy; the response to each course is assessed and charted separately. Thus, the same patient may figure in more than one column. When skin and eye lesions coexist, the patient is included under the clinical condition for which a particular treatment was indicated. The response to treatment was assessed by clinical, radiological, and histological means. The subjective clinical response was corroborated, whenever possible, by objective signs. Chest radiographs were done at three-month intervals as long as changes were taking place and were continued at six-month intervals when static.

The course of bilateral hilar lymphadenopathy associated with erythema nodosum is benign, and spontaneous resolution is usual within a year. The chest radiographic findings in patients with erythema nodosum have been excluded in order to prevent distortion.

Radiographs of hands and feet showing bone changes were repeated after courses of treatment and again within one year. The histological response was evaluated by serial biopsies from skin, the sites of positive Kveim tests, the liver and from nasal mucosa. The follow-up period has never been less than two years.

CLINICAL RESPONSE

The clinical response is shown in Table 1.

RADIOLOGICAL RESPONSE

Most patients (88%) with bilateral adenopathy eventually showed clear chest radiographs without treatment. Of the patients who presented at later stages with hilar adenotherapy and pulmonary mottling the percentage of those clearing was less. With antituberculous chemotherapy and corticosteroid therapy the percentage of those clearing was still less. When cutaneous or ocular involvement accompanied pulmonary sarcoidosis, spontaneous resolution of the radiological changes was less likely.

DISCUSSION

The minimum criteria used in this series for the diagnosis of sarcoidosis are twofold. There should be evidence of generalized involvement and also histological proof of sarcoid tissue. Clinical or radiological

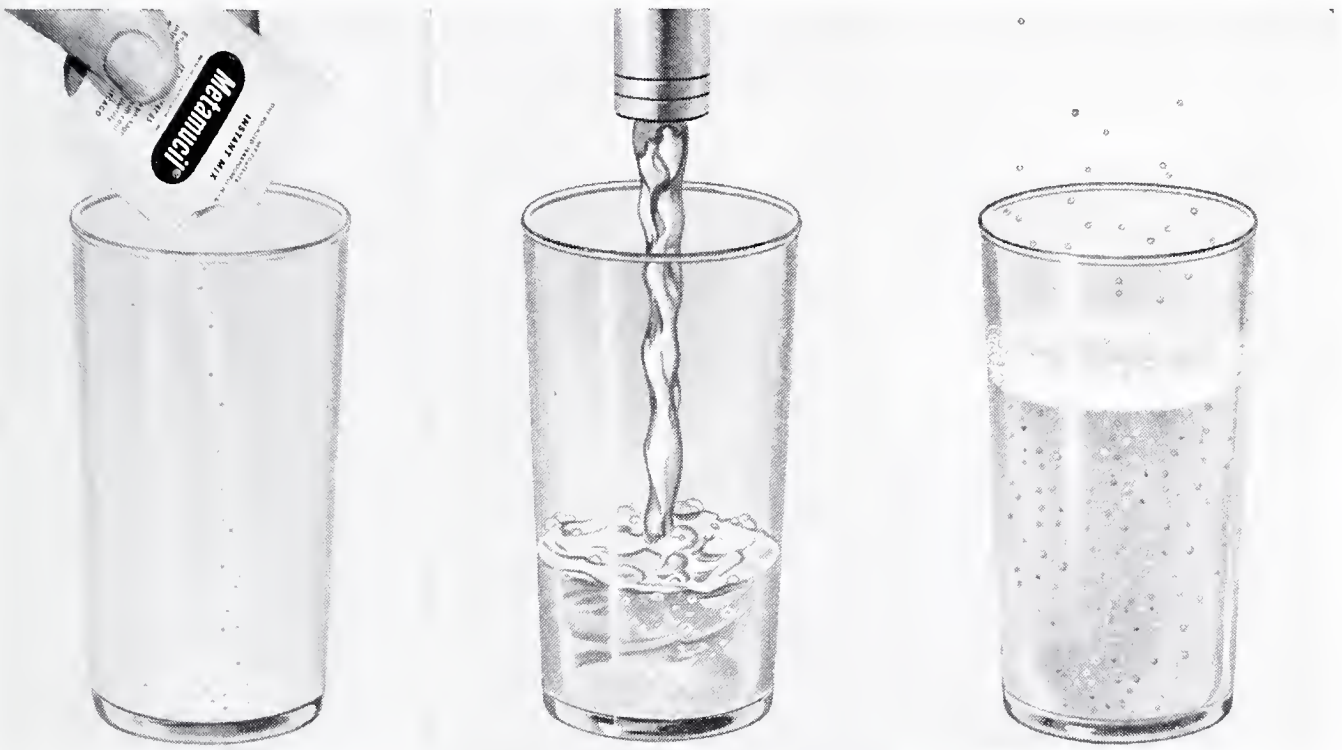
D. GERAINT JAMES, M.D., AND A.D. THOMSON, M.D., *The Lancet, May 23, 1959*

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Table 1—Clinical Response in Untreated and Treated Patients with Sarcoidosis

Clinical condition	Untreated		Antituberculous chemotherapy		Corticosteroid therapy		
	Number	Improved	Number	Improved	Number	Improved	Relapsed
Subacute iridocyclitis	4	3	1	—	8	8	—
Chronic iridocyclitis	5	—	4	—	14	5	14
Conjunctivitis	8	8	—	—	—	—	—
Keratoconjunctivitis	4	1	—	—	3	3	—
Enlarged lacrimal glands	1	1	1	—	3	3	—
Conjunctival follicles	1	1	1	—	2	2	—
Periphlebitis retinae	—	—	—	—	1	—	—
Lupus pernio	4	—	3	—	5	5	5
Plaques	4	—	2	—	6	6	6
Maculopapular eruption	5	5	—	—	3	3	—
Erythema nodosum	60	60	1	1	1	1	—
Salivary-gland involvement	4	3	1	—	3	3	—
Bell's palsy	4	4	—	—	—	—	—
Meningitis	—	—	1	—	1	1	—
Splenomegaly	15	8	4	—	10	10	2
Peripheral lymphadenopathy	47	37	5	2	18	18	7

manifestations alone are too wide a diagnostic finding, and isolated histological evidence could be construed as a local sarcoid-tissue reaction.

The over-all pattern of sarcoidosis is that of a benign self-limiting condition. The results of treatment depend on the type of disease. In this context an arbitrary division may be made into subacute and chronic forms.

Since it is impossible to foretell spontaneous resolution, steroids are indicated for subacute iridocyclitis to avoid devastating chronic sequelae.

In contrast, skin lesions do not progress from a subacute to a chronic stage. From the onset, they are either transient or persistent.

Table 2—A Comparison of Subacute and Chronic Sarcoidosis

	Subacute or transient	Chronic or persistent
Clinical condition	Subacute iridocyclitis Conjunctivitis Maculopapular eruptions Erythema nodosum Salivary-gland involvement Bell's palsy Lymphadenopathy	Chronic iridocyclitis Keratoconjunctivitis Lupus pernio Plaques
Radiology	Bilateral hilar lymphadenopathy	Pulmonary mottling Bone cysts
Histology	Epithelioid cells Giant cells	Epithelioid, giant cells, and fibrous tissue
Spontaneous remission	Frequent	Rare
Recurrence after corticosteroid therapy	Rare	Frequent

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Lymphoid Tumors

HUGH F. HARE, M.D.
WILLIAM STONE, M.D.*

The lymphoid tumors were first described by Marcello Malpighi (1628-1694) in 1666. Malpighi was the foremost microscopist of the 17th Century, and his work on the structure of the liver, spleen and kidneys did much to advance the physiologic knowledge of these viscera. It was during his study of these organs that he described and presented the first account of the lymphadenomatous formations, that is, general enlargement of the lymphatics with nodules in the spleen. No other mention of this condition was made until the pathologist, Thomas Hodgkin, in 1832 described the lymphoid tumors adequately and termed them lymphadenoma. The name Hodgkin's disease or pseudoleukemia was coined by Wilkes in 1856. Sir Samuel Wilkes (1824-1911) was a historian and gave Hodgkin credit for his description of the disease of which we are talking today. It is apparent from this that the clinical picture, the prognosis, the physical findings and the form of treatment have all been developed in our own century. The original studies were performed on cases of advanced lymphadenoma at postmortem when the disease was generalized and little, if any, was known of the clinical picture.

ETIOLOGY

The etiology of the lymphoid tumors is unknown. There are two schools of thought concerning etiology; one that the process is a malignant change in the lymphoid cells, the other that the disease is produced by a virus. There are reasons, naturally, for both schools of thought, and until the exact cause is found there will be believers on both sides. It is an interesting fact that the disease very frequently is first noted by the patient following a cold, at which time enlarged lymph nodes are noted in the neck. This happens in about 60 per cent of the cases, which would lead one to believe that the disease is one of an infectious nature rather than of a truly malignant nature. Bostick (1) states that "General research in cancer continually adds evidence in support of the significance of viruses in many kinds of malignancies in animals. It cannot be claimed that this has no bearing on human neoplasia. In the field of Hodgkin's disease research the electron microscope and virus purification procedures are adding suggestive evidence of viral origin. These methods, in combination with pure-strain tissue culture techniques and the various aspects of the serological analysis of antigens and antibodies present constitute the most promising avenues leading to the ultimate resolution of this deadly disease."

Kassel (2) adds this note of caution: "A most difficult burden of proof rests upon any investigator who believes that he has isolated a virus from a Hodgkin's disease source for, after having eliminated the possibility of a contaminating virus from the biological system used for the original isolation, he must of course demonstrate that the suspected agent will produce the disease. In view of the lack of any susceptible laboratory animal, it is at this time impossible to meet this requirement. Hence, it is necessary to find

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*Fellow

some other response in the laboratory animal that will signal the presence of Hodgkin's-specific material. It may be that the mouse paralytic syndrome observed by Bostick will prove to be such an indicator system."

There are those who believe that the disease is unicentric in origin, that is, developed from one cell, and others who believe that there are many centers of origin of the malignant cells, termed multicentric in type. We will assume in this paper that the disease is unicentric in origin, and if other centers of involvement occur during the course of the disease, it is due to the spread of the disease through the lymphatics to involve other lymph nodes. This spread of the disease will be present in all cases unless the disease can be arrested either when localized or regionalized.

HISTOLOGICAL CLASSIFICATION

There is as yet no uniform histological classification for lymphoid tumors. It seems likely that the pathologists have attempted to refine their classification beyond the borders of practicality as far as the treatment of the patient is concerned, especially when they are dealing with a very small portion of the tumor as the result of a biopsy and are not taking into consideration the other lymph nodes involved. I believe most pathologists agree that variants of the tumor may occur in the same individual, and he can only judge on the specimen that he receives at the time of biopsy. It is well, however, to attempt a refined classification so that when more material is gathered and the results of various types of treatment are reported we will be able to better judge the value of a detailed classification. The difficulty in attempting to refine the classification is that it may be detrimental in determining the amount of radiation or chemotherapy delivered to the patient if the diagnosis is based on a single lymph node. The lymphocytes in any of the tumors are easily destroyed by radiation, but some of the epithelial cells and other portions of the malignant tumor require larger doses for complete obliteration.

The American Society of Clinical Pathologists have recently developed the following classification, which is a good workable division of these tumors.

TABLE I*

LYMPHOID TUMORS

WORKING CLASSIFICATION OF MALIGNANT LYMPHOMAS

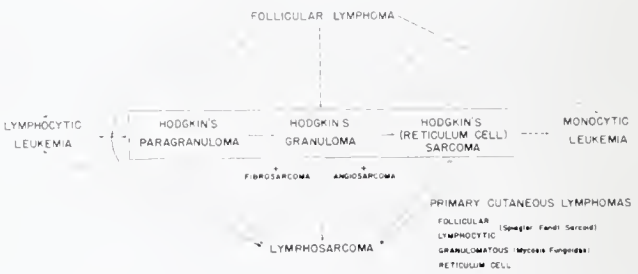
"NODULAR" (FOLLICULAR)	DIFFUSE
STEM CELL HISTIOCYTIC LYMPHOCYTIC POORLY DIFFERENTIATED	"RETICULUM CELL SARCOMA"
WELL DIFFERENTIATED	"LYMPHOSARCOMA"
MIXED CELL (HISTIOCYTIC & LYMPHOCYTIC)	
HODGKIN'S PARAGRANULOMA GRANULOMA SARCOMA	"CLASSIC"

*Reproduced by permission of The American Society of Clinical Pathologists.

TABLE II

LYMPHOID TUMORS

TRANSITIONS OBSERVED AMONG TYPES OF LYMPHOMA



According to Gall (3), "For many years students of lymphoma have believed that a pathogenetic interrelationship existed among the different forms of the disease. This has been implied in the use of the terms 'lymphoblastoma' or 'malignant lymphoma' as indications of a related group of disorders. This concept has been supported by the recognition that metamorphosis from one form of lymphoma to another could be anticipated in a certain proportion of cases. The occurrence of variation and dedifferentiation has been likened to similar alterations appearing in epithelial neoplasms. How broad this variability of pattern may be in lymphoma is indicated by the vector chart devised by Custer (4), which would indicate a potentiality for extensive histological flux. Indeed, Custer has stated that in his experience such variations may be anticipated in due course in 40 per cent of cases."

The slowest growing tumor histologically, as has been shown by Jackson and Parker (5), is the lymphogranuloma. To some extent one cannot judge the value of

this diagnosis as in many cases the histological structure has been noted in retrospect when the follow-up of the patient has been obtained. In our opinion one should be slow in developing a prognosis on the basis of histology alone. It is true that the best results of treatment of any of the lymphoid tumors have been made when the diagnosis has been made of Hodgkin's disease. Those reported as having lymphoblastoma or lymphosarcoma have shown the poorest five-year results, and the giant follicular cell has been a progressive type of lesion but one that is slowly growing.

CLINICAL CLASSIFICATION

Peters (6) has developed a satisfactory clinical classification which is based on clinical findings of the disease, including the hematologic findings and x-ray of the chest or other portions of the body to determine the extent of the disease:

Stage I: Only one lymph node region or a single lesion elsewhere.

Stage II: Two or more proximal lymph node regions confined to either the upper or lower trunk.

Stage III: Multiple lymph node regions or acute Hodgkin's disease with no obvious lymphatic involvement.

This classification is an index that we may use for prognosis and as an aid in planning treatment. The clinical symptomatology depends on the extent of the disease. It is well recognized that lymphoma may arise in any part of the body, and when it arises below the diaphragm it is difficult to accurately stage, but an attempt should be made to do so.

Lymphatic anatomy and circulation to a large extent determine the mode of lymphoma spread, as the spread of this disease first takes place either by direct invasion of the lymphatics or by the lymphoid tumor cells being cast off into the lymph stream (embolic) and being carried to the major trunks and thence to the blood stream. The thoracic duct is the major trunk of the lymphatic circulation except for portions of the head and neck, upper extremities and thorax. Constant centripedal flow of lymph is maintained by capillary filtration, pressure and muscle action. "Rouviere and Valette (1937) measured the side pressure by cannulating a division of the thoracic duct, often found in the dog at the point of entrance into the subclavian vein, and obtained a pressure of 6.4 cm. water. Pressure in the internal jugular vein of the same animal was 2.4 cm. water. The difference between lymph pressure and venous pressure promotes ready entrance of lymph into the veins at the base of the neck. . . Rouviere and Valette used an indirect method — the measurement of pressure required to collapse cervical lymphatics— and obtained pressures of 1.5 to 2 cm. water." (7) It has been shown (8) that retrograde permeation will occur when regional lymph nodes are completely filled with tumor. It is the basis of this lymphatic spread or lymphatic anatomy which will help us to determine the best form of radiation treatment for this disease. Until chemotherapy is further developed, radiation therapy is the treatment of choice except for those lesions of the gastrointestinal tract which may be removed surgically and in certain cases of lymphatic leukemia.

CLINICAL FINDINGS

The patient with lymphoid tumor, arising as it may from any portion of the lymphatic system, will produce almost any given variety of symptoms. However, in the very early stages of the disease symptomatology is limited to the portion of the body involved. The most frequently involved region is the neck, wherein approximately 60 per cent of the cases the nodes are found for the original biopsy. At this stage the patient will usually give a history of having had a slight infection, usually an acute respiratory infection. The lymph nodes of the neck become swollen during this period, decrease in size for a while, and then enlarge again. Resulting biopsy reveals evidence of malignant lymphoma without any other clinical symptoms. If the disease is not diagnosed clinically at this time and the disease spreads, it will produce symptoms of generalized disease, namely, (1) fatigue, (2) fever, (3) itching, (4) bone lesions and (5) weight loss. These are indicative of Stage III or generalized disease. It is difficult to outline the clinical symptomatology of these cases due to the diverse sites of origin and the various stages of

the disease encountered owing to the change in symptomatology as the disease progresses.

The hematological findings in patients with lymphoma are not significant unless the disease is advanced. Blood studies should be done to determine the presence or absence of anemia or any change in the white count which may indicate bone marrow irritation as a result of spread to this region.

BIOPSY

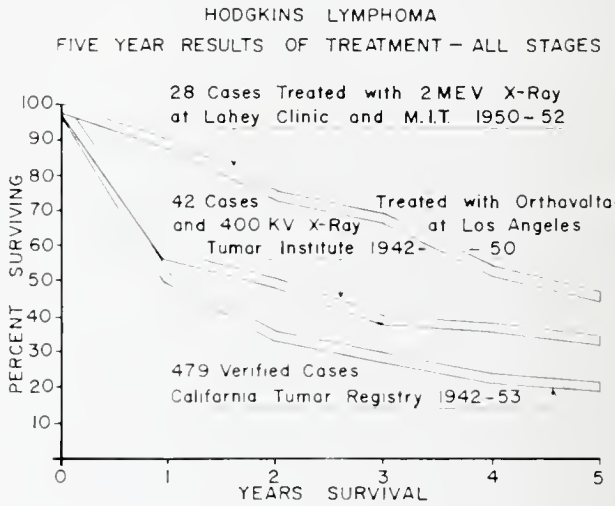
It is essential that a biopsy be obtained in every patient when the disease is suspected. The entire lymph node should be removed for study as well as an adjacent small node if there is one present since in some cases necrosis takes place in the large node due to pressure and a more clear-cut histologic pattern may be obtained from the smaller and more recently involved node. When the biopsy has been obtained and there is evidence of anemia or any peripheral blood changes, then a bone marrow biopsy should be taken, but in our experience the interpretation of this bone marrow in the presence of Hodgkin's disease requires a knowledge of the clinical condition of the patient before the pathologist is capable of properly interpreting the bone marrow picture.

THERAPY

The primary treatment of lymphoid tumors, except for those arising in the stomach or terminal ileum, is radiation therapy. It is the commonly expressed opinion of most therapists that Hodgkin's disease or lymphoid tumors are eventually fatal once the disease has been diagnosed. Poor prognostication by even the best radiologists has led to the administration and wide use of chemotherapy, where chemicals which mimic the action of x-ray can be given so as to affect the entire lymphatic and hematopoietic systems in hopes of destroying any of the abnormal cells that have spread to the various parts of the body. The use of these drugs has been palliative in some cases, detrimental in others. The radiomimetic drugs, as does x-ray, tend to injure normal tissue. The drugs injure all of the cells of the hematopoietic system while radiation injures only the portion that receives treatment. The blood concentration of the radiomimetic drugs thus far developed and obtainable is not great enough to destroy the tumor cells without destroying the normal structures.

This is a plea for better radiation of the Stage I and II cases of Hodgkin's disease whereby one employs radiation fields to include not only the known involved lymph nodes but also the adjacent lymphatics. We believe our results, using this form of treatment, indicate the value of this form of therapy and yet do not represent the best of the results that can be obtained if careful consideration is given to each patient using the knowledge we have at hand. Table III.

TABLE III



It has been our experience that lymph nodes treated with insufficient quantities of radiation are likely to reveal the persistence of the tumor by recurring in the same site. In these cases, as in other cases of malignancy, some of the cells respond to small doses of radiation and may clinically disappear leaving only the more resistant cells to regrow. When these resistant cells divide and the lymph node becomes apparent, the quantity of radiation necessary to destroy them is greater, and therefore we say the disease has become more resistant. This is true only to a certain extent. The resistant cells were there at the inception of treatment but were not previously destroyed, and the treatment to destroy these resistant cells must be given in a large enough dose to completely destroy them, probably the same dose that should have been given in the first place.

QUALITY OF RADIATION

The quality of radiation is not important as far as the malignant cell is concerned. The response would be the same, but delivering a poor quality of radiation to a patient is much more difficult than delivering the best quality radiation. This is due to the damage produced by soft x-rays to the skin, bones and other adjacent tissues, and to the poor depth dose. The scattering effects of soft radiation are so great that it is difficult to deliver an adequate dose unless megavoltage therapy is used. The quantity of radiation necessary to destroy the lymphoid tumors is not known, but in our experience 16 per cent of the tumors will recur in the field of treatment when a dose of 2400 r is delivered. We have, therefore, attempted to deliver 3000 r to the tumor field and the adjacent lymphatics in all of our cases since the degree of persistence has been known. In some cases this has not been possible except by protracted therapy, but generally even this method of delivering 3000 r proved better than a lower dose.

We have used x-ray produced at two million volts for the treatment of lymphoma since 1949 (9). Several physical and clinical advantages result from the use of this higher energy radiation in local and regionalized cases. The relatively greater penetration, as indicated by its half-value layer (HVL) of 12.5 mm. copper, allows the administration of sufficient radiation to the deeper tumor-bearing regions. Untoward skin effects are almost completely avoided both because of this penetration and because of the fact these high energy rays achieve their maximum ionization just below the radiosensitive skin (10). The threshold skin erythema dose with 2-million-volt x-radiation is about 3000 r when delivered by the divided-dose technique, as compared with less than 1000 r for conventional deep therapy rays. In addition megavolt rays are known to be less strongly absorbed by bone and other high-atomic-numbered components and thus have a lesser effect on the blood-forming organs for the same soft tissue dose.

The Van de Graaff electrostatic x-ray source used in this work is a constant-potential unit delivering 80 r/min., measured at 1 meter. The usual treatment distance of 125 cm. allowed a portal 35 cm. x 35 cm. in size and made possible the treatment of most regions with a single field carefully shaped so as to shield normal structures such as the eyes, teeth, lungs, or genitalia (Figures 1 and 2). The

Figure 1

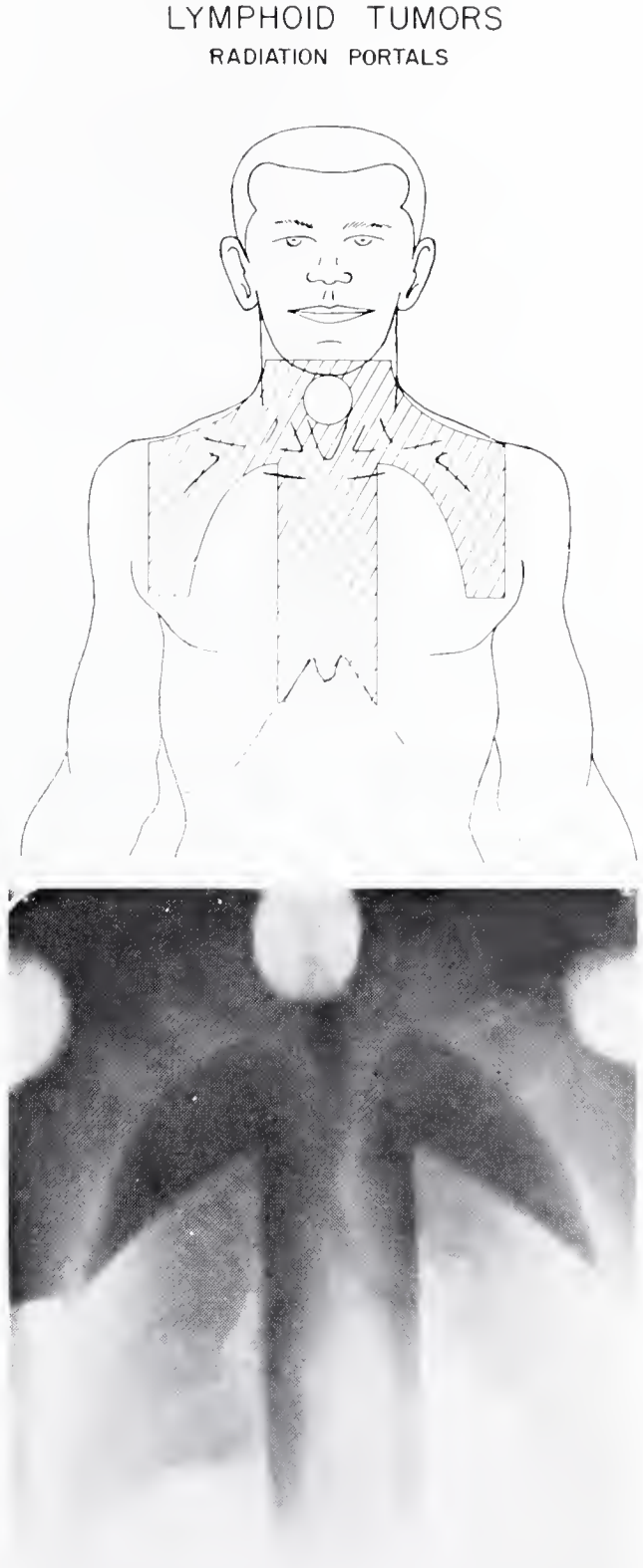


Figure 2. MeV Van de Graaff x-ray portal, double exposure, dark portion the area treated.

focal spot on these units is usually under 3 mm. in diameter and results in a sharply defined x-ray beam. These factors have allowed us to treat most of our lymphoma cases through two portals, one anterior and one posterior, with minimum tumor doses from 2400 r to 3000 r delivered to the primary lesion and the adjacent lymphatics, regardless of the location. Conventional deep therapy equipment cannot readily provide portals of the dimensions desirable for lymphoma therapy and may elicit excessive skin and systemic reaction if adequate deep irradiation is delivered to such large fields.

SUMMARY

The results of 2-million-volt radiation therapy using the clinical staging developed by Peters shows an improvement in results, especially in Stage I and Stage II cases.

Our experience leads us to the opinion that chemotherapy should be used only in the Stage III cases as a palliative addition to radiation.

A plea is made to return the early cases of malignant lymphoma to the radiologist for primary treatment of the disease.

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Urologic Problems in Children

EDGAR BURNS, M.D.* AND ROBERT F. CARTER, M.D.**

The urologic problems encountered in children comprise both acquired lesions and those resulting from some type of developmental anomaly. Some of these are of immediate importance to the health and development of the child and others influence the future adaptability of these children to their social and occupational environment.

The expansion of pediatric knowledge has done much to reduce the incidence of acquired lesions as well as to provide a better understanding of the congenital ones. Currently available diagnostic procedures can easily and safely be applied to children of all ages, and accurate evaluation of these studies will provide some indication as to the results that may be obtained by present methods of treatment.

URINARY INFECTION

Urinary infection is the most common urologic problem in children, and perhaps the most important. It may be simple or secondary to a focus of infection, or it may represent a complication of an obstructive lesion. Simple infections of the urinary tract are of short duration and subside with no other treatment than adequate fluid intake and a short course of one of the currently available urinary antiseptics. The greater number of cases of urinary infection in children are due to a focus of infection but with no changes in the architecture of the urinary tract, or to a complication of a congenital obstructive lesion.

The adverse effect of recurrent or persistent urinary infection upon renal function is well known, and the extent of damage is usually related to the contributing factors and the duration of the infection. Efforts must therefore be directed toward accurate evaluation of the various types and institution of corrective measures before renal failure becomes irreversible. Review of the reported cases as well as one's own records will always prove helpful. We recently reviewed the records of 100 children younger than 12 years of age whose primary diagnosis was urinary infection. No obstruction was found in 56 of these; there were 9 boys and 47 girls and 25 were younger than 4 years of age, the youngest being 5 months old. The remaining 44 children had some type of congenital obstructive lesion; there were 8 boys and 36 girls ranging in age from 5 months to 9 years, with 25 younger than 4 years of age. The symptoms presented by the non-obstructive group included chills and fever, enuresis, diurnal stress incontinence, dysuria, frequency and hematuria. Eighteen of these had recurrent infection, which is always of great significance. Foci of infection were found in 25 children (Table 1).

Table 1

FOCI OF INFECTION IN 56 CHILDREN WITH NON-OBSTRUCTIVE URINARY INFECTIONS

Focus	Cases
Vulvovaginitis	12
Tonsillitis	6
Upper respiratory infection	3
Otitis media	1
Infected prepuce	1
Lung abscess	1
Abscessed teeth	1
Total	25

Accurate evaluation of urinary infections in children requires complete urologic investigation in the majority of cases. The question always arises as to when this should be done. It is now generally accepted that complete studies should be done after the first episode of infection in males and after the second episode in females. These include bacteriologic studies, renal function tests, and appropriate urographic studies. The accuracy of the bacteriologic studies is proportionate to the method of examination. Of importance is the method of collecting the specimen. A midstream specimen is collected in males but only a catheterized specimen is acceptable in

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females. Most urologists believe that careful examination of a properly prepared and stained smear immediately after it is collected constitutes the most important bacteriologic study. Cultures and sensitivity studies may be done in case of recurrent or persistent infections in order to identify the more resistant organisms. To depend upon cultures entirely to determine the presence of infection leads to treatment of the most erroneous type. Fourteen of our 56 children with non-obstructive lesions were treated on the basis of the results of the stained smear alone. The treatment employed in this group consisted of drugs as indicated by bacteriologic studies and appropriate management of the focus of infection. Cure was obtained in 41 and improvement with interval recurrence in 7. No follow-up data were available in 8 patients, as they were sent back to the referring physician for treatment. In the management of non-obstructive urinary infections, the physician must look for foci of infection, which, if found, must be eliminated if the best results are to be obtained.

Infection, in the presence of an obstructive lesion, has much greater significance. It constitutes a complication of the primary lesion, often a late one, and always increases the rate of renal failure. Obstructive lesions in children are all congenital, and the extent to which the architecture of the urinary tract has been changed and the amount of renal damage that has occurred may be measured by the degree of obstruction and the age of the child. The importance of early recognition of such lesions is therefore obvious.

Specific symptoms referable to the urinary tract are sometimes absent, and those that are present are often attributed to other causes simply because the examiner does not think of the urinary tract as a possible source of the child's illness. The younger the child, the less helpful he is, since crying is the infant's only means of expressing discomfort. Recognition, therefore, must be based largely upon the objective signs that may lead to appropriate diagnostic studies. Any variation from the normal voiding pattern is an indication for urologic examination. Straining on urination, a poor stream, and failure to complete the act promptly in one effort are common signs of obstruction in the lower urinary tract. These may be observed in infants as well as older children. The importance attributed to these signs often determines the immediate future of the child. Illustrative of this is the following case:

In July 1943 we were asked to see a 9-month-old baby boy who had been admitted to the pediatric service in coma. During the first few weeks after birth the grandmother noted that the infant voided more often than appeared normal and that the act was accomplished with a great deal of straining. The difficulty was attributed to a long foreskin and circumcision was performed. At the age of six months the baby began to have chills and fever and a mass developed in the lower part of the abdomen. At examination 350 cc. of infected residual urine, a dilated upper urinary tract, and cortical atrophy of both kidneys were found. Death resulted from renal failure ten days after admission, and at necropsy, congenital obstruction of the neck of the bladder produced by prostatic valves was found.

In contrast to this case, in November 1951 we were asked to see a 6-week-old baby boy because of severe straining on urination and chills and fever. He was found to have residual urine, a dilated and decompensated upper urinary tract, and severe tortuosity of the ureters. The tortuous ureters constituted partial obstruction to the kidneys preventing normal passage of urine to the bladder. Bilateral nephrostomies were done to relieve the emergency, and later the redundant portion of both ureters was resected and the bladder neck obstruction was removed. He has been maintained on suprapubic catheter drainage for eight years. His upper urinary tract is still dilated but he has grown at the normal rate, has maintained adequate renal function and is apparently not handicapped in his activities by the drainage apparatus. It seems reasonable to suggest that he would not have survived a long delay in recognizing the obstructive lesion.

Persistent or recurrent infection demands urologic study. The importance of this is emphasized by the case of a

little girl, 5 years of age, who was admitted to the pediatric service in October 1953 after a cerebral hemorrhage produced unilateral paralysis. The blood pressure was 230 mm. Hg systolic and 120 mm. Hg diastolic. The patient had had recurrent attacks of tonsillitis with chills and fever at which times pus was found in the urine. The illness was attributed to tonsillitis. During the course of examination to determine the cause of the hypertension, she was found to have bladder neck obstruction complicated by infection and atrophic pyelonephritis on the right side, which was thought to be a factor in the hypertension. The blood pressure returned to normal after removal of the right kidney.

In many cases the urinary symptoms are not sufficiently outstanding to attract immediate attention, especially in the absence of infection. Failure to grow normally may be an indication of reduced renal function. An example of this is that of a 10-year-old boy who was admitted to our service in a semi-comatose condition. One week before admission he sustained an insignificant injury to his left side in a fall from his bicycle after which a mass in the side developed and he went into shock. His local surgeon removed a ruptured hydronephrotic left kidney. The postoperative blood urea nitrogen level was 100 mg. per 100 ml. The child died of renal failure two weeks after the injury. At necropsy congenital bladder neck obstruction with the characteristic obstructive changes in the bladder and a hydronephrotic right kidney almost identical to the left kidney surgically removed were found. In this case loss of one-half of the reduced renal function was enough to cause irreversible renal failure.

OBSTRUCTIVE LESIONS

Obstructive lesions in the urinary tract in children require prompt surgical removal because decompensation progresses at a more rapid rate than in adults. There is no non-operative treatment. Attempts at non-operative management will only encourage progressive renal failure. An example of this is that of a boy, 16 years old, who was admitted to our service in the end stages of renal failure. At the age of 4 months he had had acute urinary retention and was catheterized. He required catheterization at intervals until the age of one year when his mother was advised to use manual compression with each desire to void, a method that was sometime used at that time and is still recommended in some of the literature. He was later taught to use manual compression himself, which he continued to do until renal failure developed.

A common obstructive lesion in the lower urinary tract is at the external urethral meatus. It is encountered in females as well as males and may be sufficient to produce the same damage to renal function as the lesions at the bladder neck. An example of this is that of a 6-month-old baby boy who was admitted to our service three years ago. The chief symptoms were frequency, a poor intermittent stream, enuresis and diurnal stress incontinence. The urine was not infected. Complete studies of the urinary tract showed a stenotic external urethral meatus as the only obstructive lesion, a dilated bladder and left vesico-ureteral reflux. Urethral meatotomy was done at the same time as the examination and now, three years later, the patient has no urinary symptoms and the urinary tract is normal. Since that time 2 females have been seen with similar findings and the same results have been obtained after meatotomy. These cases emphasize the importance of careful evaluation of the external urethral meatus as a part of the urologic examination in both male and female children. Obstruction at this point is frequently associated with obstruction at the bladder neck, or congenital stricture along the urethra and is often lost sight of in concentrating on the more obvious lesion. It is often a good procedure to enlarge the external ureteral meatus in connection with doing circumcision.

Symptoms alone are of little value in differentiating those with obstruction from those without obstruction with the exception of an occasional child in whom acute retention of urine develops. This occurred in only one of the 44 children with obstruction of the lower urinary tract in our series. The bacteria involved in urinary infections are the same types in both groups. The results of complete

urologic studies in these 44 children emphasize the importance of doing these studies early. Twenty-four, or slightly more than half of the group, had dilated upper urinary tracts with varying grades of reduced renal function. One child had uremia and later died of renal failure. This small group of obstructive lesions studied in connection with a review of urinary infections in children conformed to the same pattern found in a study of 174 children younger than 12 years of age who were operated upon for obstruction of the lower urinary tract on our service reported two years ago. It again emphasizes the importance of early urologic examination.

DUPLICATION

A common congenital anomaly is duplication of the upper urinary tract. The duplication may represent nothing more than a bifid type of pelvis, the ureters may be duplicated and joined at any point along their course or they may be completely duplicated and enter the bladder through separate orifices. This anomaly is encountered more often in females than in males. If a duplicated ureter opens in an ectopic position, it becomes of clinical importance. In the male the ectopic opening is usually proximal to the external sphincter and the corresponding renal segment becomes hydronephrotic and eventually infected. In the female, however, the ectopic orifice nearly always bypasses the sphincter and there is constant dribbling of urine. The usual location is the distal urethra or the vagina. The voiding pattern is usually significant. In addition to constant dribbling, the patient voids at the normal interval and in normal amounts. The diagnosis of duplicated ectopic ureters can always be confirmed by cystoscopic and urographic studies. The urograms are always suggestive even though the ectopic orifice may not always be located on cystoscopic examination.

EXSTROPHY OF THE BLADDER

Another congenital anomaly of great clinical importance is exstrophy of the bladder. There is no problem in pediatric urologic practice that requires a more accurate understanding of embryologic development than exstrophy of the bladder. Lack of such understanding has led to many erroneous types of treatment. The urogenital diaphragm is absent in the majority of cases to the extent that reconstruction of the bladder and urethra with urinary continence cannot be accomplished. The rectal sphincter is also incompetent in many cases and this prohibits diversion of the urine to the intact bowel. This leaves cutaneous diversion of the urinary stream as the only means of keeping these children dry.

SPINA BIFIDA

Spina bifida is another important congenital developmental anomaly. The bladder dysfunction that results from spina bifida constitutes one of the most difficult problems in urologic practice. These cases fall roughly into two groups: 1) those with retention of urine and 2) those with total incontinence. Patients with retention of urine have a lesser degree of maldevelopment in that there is some nerve supply to the external sphincteric area with a principal deficiency in the nerves that go to the detrusor muscles creating an imbalance between the strength of the bladder wall and resistance offered by the bladder outlet. Transurethral resection combined with urocholine and manual compression in some of these may result in restoration of enough bladder function for the patient to remain dry. Those who have a severe degree of spina bifida, however, have a flaccid bladder outlet with total incontinence of urine. There is no mechanical substitute for a normal nerve supply, and in this group diversion of the urine is required. In view of the fact that the nerve supply to the rectal sphincter is also absent, cutaneous diversion is the only choice. Development of the ileal conduit during the past few years has provided a most satisfactory means of cutaneous diversion that can be employed in patients with spina bifida or exstrophy of the bladder.

In dealing with both of these lesions we have observed that when nature has failed in the normal development of one system, some compensation is offered in another. Most of these children are highly intelligent and capable of unusual accomplishments. The objective in treatment is to provide some therapeutic arrangement that will permit them to move

in a normal social atmosphere and to indulge in a gainful occupation.

HORSESHOE KIDNEY

Another congenital anomaly that emphasizes the advisability of doing more routine studies of the urinary tract in children than is currently practiced is horseshoe kidney. The renal pelves and ureteropelvic junction occupy an abnormal position and in such cases hydronephrosis is liable to develop ten times more often than in kidneys that have developed normally. Infection, stone formation and reduced renal function are common complications. Until these complications occur, the only symptom produced by a horseshoe kidney is vague upper abdominal discomfort from pressure of the isthmus on the abdominal vessels. Advanced renal damage from an unrecognized horseshoe kidney is commonly encountered.

MISCELLANEOUS ANOMALIES

There are many other developmental anomalies of the genitourinary tract. Among these are undescended testes, hypospadias, hypoplastic kidney, ectopic kidney, polycystic disease, and the various obstructive lesions in the upper urinary tract.

The frequent occurrence of these is apparently not generally recognized. One of the most significant reports that has appeared in the literature during the past few years is that made by members of your own society. Jameson, Cooper and McKinney (1) reported a large group of congenital anomalies of the genitourinary tract discovered during a period of four years in only 3 counties of Arkansas with a total population of 130,000.

In considering diseases of children, it should be emphasized that the urinary tract is a vital system, and that in the routine care of infants especially, and older children as well, the urinary tract must be given the same careful consideration as is accorded the chest, feeding problems, and other gastrointestinal disturbances so common in the younger age group.

SUMMARY

Urologic problems in children may be congenital or acquired. Proper solution of these problems is important not only to the immediate development and growth of the child but also to his future adaptability to his social and occupational environment.

The most common urinary problem in children is urinary infection, which may be primary or secondary to a focus of infection or an obstructive lesion. Most cases are secondary. Complete urologic studies are indicated after the first attack of infection in males and the second in females. Obstructive lesions of the urinary tract in children must be removed promptly because decompensation takes place more rapidly than in adults.

Congenital anomalies include duplication of the upper urinary tract, exstrophy of the bladder, spina bifida, undescended testes, hypospadias, hypoplastic kidney, ectopic kidney, horseshoe kidneys, polycystic disease and various obstructive lesions in the upper urinary tract. These are anomalies of clinical significance that require prompt urologic attention if best results are to be achieved.

Reference

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The Purpose of the Court

R. V. Bennett, M.D.*

The approach to any problem or subject is necessarily divided into three parts. First: the terminology used must be defined; and an explanation and a justification offered for consideration of the topic. Second: all knowledge relative to the problem should be presented. Third: the facts presented must be considered and a conclusion, if such there be, arrived at.

When it is stated that I believe such and such to be true; it is assumed that no factual information exists to substantiate the belief and that in truth the belief is little more than armchair pilosophizing or, if you will, daydreaming. When it is stated that I think such and such to be true, it is assumed that there are a substantial number of factual observations to substantiate the statement. When it is stated that I know such and such to be true, it is assumed that the factual observations to substantiate the statement are conclusive. In other words, I think such and such to be true is a theory; I know such and such to be true is a law; I believe such and such to be true is still armchair philosophizing or daydreaming.

A cause is always a contributing factor in any given observation. The contributing factors of any given observation may be multitudinous. Behind the many causes there is always one factor—the causation. For example, pain is merely an interpretation placed on an impulse arriving at the brain. It is obvious that there are many causes that can initiate the impulse.

A theory is an observation which repeats itself time and time again, but the observation is repeatedly observed within certain limits only. For example, the volume of a gas varies directly as the temperature and inversely as the pressure. An equation can be written for this observation, but the equation is true only within certain limits of temperature and pressure.

A fact is a self-evident statement and requires no explanation. For example, it is not a fact that a glass bottle will break if it is thrown on a concrete sidewalk. The fact would be that glass will break when the energy imparted from the impact is sufficient to overcome the energy of the molecular attraction within the glass. It, of course, is obvious that a still more basic fact or observation can be made to account for the broken glass. In other words, it is foolish to state as a fact that if glass is thrown on concrete it will break. Some glasses made can withstand enormous forces.

A law is an observation that recurs over and over again and no limits are applicable. A law defining a certain observation is usually superseded by still another law which is simpler and more basic than the law which it supersedes.

An observation of occurrences is itself an interpretation. It is self-evident that the interpretation placed on any particular observation may be quite erroneous. Too often too few observations are made; and, in fact, too often no observations are made. The interpretations too often are either falsely reported or too enthusiastically reported. A competent observer is rare indeed; as competency requires not only mental astuteness but also self-condemnation.

Knowledge is one thing and understanding is another. Knowledge is cognizance of facts. Understanding is the ability to utilize the facts. Wisdom is the proposal of a hypothetical problem; and then with knowledge of established facts, with understanding of the facts, and through a process of deductive and inductive reasoning arrive at a fact or conclusion not yet attained—progression, if you will, towards the perfection of the Universal Mind.

Moral law and physical law are one and the same insofar as moral and physical law have a common origin. All laws, moral or physical, exist by virtue of the mind; and no observation has ever been made which lends less than credence to the fact that nothing can create anything greater than itself. The minds which we as individuals possess, the minds which recognize the physical and moral order

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were not of themselves created but instead created by a Universal Mind.

The worth of an individual within a society is in direct proportion to that society's appreciation of God, and the freedom of thought which the knowledge of God bestows. As the freedom or worth of an individual within a society increases, the more there will appear on the statute books not laws but rules and regulations which in turn lower the esteem placed upon the individual. In other words, the excessive rules and regulations are the outgrowth of erroneous interpretations made by man of the law.

The Universal Mind created minds endowed with the ability to observe and interpret as well as to choose. The ability to choose is the basis of our Declaration of Independence and the Constitution of the United States of America, and this ability to choose is proclaimed in the Book of Genesis.

The Constitution of the United States of America contains a preamble which affirms the ability of the mind to observe, interpret, and to choose. The preamble is followed by articles and sections which elaborate on the existence of the mind and its ability to observe, interpret, and to choose. Rules and regulations are relegated to specific groups of individuals to formulate for the governance of specific occurrences; and these rules and regulations are valid so long as they conform to the principle set forth in the Constitution.

It should be reiterated that for the most part what is written in the statute books is not law but rules and regulations and that actually there is only one law which governs human conduct. There are a few other laws which specify what compliance is necessary for progression. These basic laws do not change only the interpretations.

Recognizing as a fact that the basic laws governing human conduct do not change and recognizing as a fact that certain situations in the course of human conduct arise in which it is necessary to interpret the conduct as whether or not conformity with moral law exists, it naturally follows that all facts relative for and against conformity must be presented. Such a presentation for consideration of conformity must needs be heard, considered, and judged—hence the need of the court.

In connection with a court a paradox exists; that is, the conduct conforms until established otherwise and at the same time non-conformity exists until proven otherwise—in justice the first part of the paradox should definitely precede the second part—such an order of consideration is our heritage.

The court insofar as possible should obtain knowledge for and against; and armed with facts proceed to understand; and in wisdom administer justice. It is the purpose of the court to seek out the truth. Unfortunately too often the court either out of ignorance or out of disinterest succumbs to the various shenanigans employed by some individuals just to win a case.

I know that it should be made amply clear that the spokesman who employs various methods of subterfuge for the purpose of confusion is morally more guilty than the individual for whom he speaks. Such a spokesman acts in retrospect; and in truth he compounds the crime.

The methods of subterfuge employed by the spokesman bent on just winning a case rather than making certain that the individual for whom he speaks has the benefit of all facts which might substantiate conformity fall into several classes. First: the spokesman tries to discredit the witness by asking irrelevant questions which deal with the factual information of the witness: Second: the spokesman either by implication or direct statement leaves the court with the impression that the statements testified to by the witness are testified to for reasons of bribery. Third: the spokesman makes a calculated effort to anger the witness so that in anger the witness will testify absurdly. Fourth: the spokesman asks several questions in one sentence. The first part of the sentence is spoken directly to the jury in such a manner that the witness is under the impression that such prattle has no bearing on his testimony. The questions contained in the first part of the sentence would be answered in the negative by the witness. The questions however are misleading and definitely

construed for the benefit of the individual on trial. The sentence is then concluded with a question to which a positive answer must in truth be given by the witness. When the spokesman presents the concluding question of his sentence, he pauses, faces the witness directly, obtains the attention of the witness and then with a great show of respect asks the witness the final question of the many-questioned sentence. The witness affirms the last part of the sentence thereby affirming the whole sentence. In other words, the spokesman has forced the witness to perjure himself—much to the benefit of the spokesman's client. Fifth: the spokesman will demand that the witness answer either yes or no to a question which obviously cannot be answered in such a manner. Sixth: the spokesman will employ the hypothetical question in the most damnable manner. He proposes a very innocent premise to which the answer is obviously in the affirmative. He then proceeds to add corollaries and construct a proposition which is highly beneficial to his client but entirely erroneous inasmuch as the basic premise should not have been accepted by the witness as a foundation on which an erroneous proposition was constructed. Seventh: the spokesman discredits the judge in the eyes of the jury by implying that the judge has forbidden the presentation of all facts relative to the case. Eight: the spokesman delves into the past of the witness—exposing misdeeds long ago committed and for which the witness is extremely sorry and long since forgiven. In other words, if we all paid publicly for all our misconducts, most of the human race would be behind bars. There is such a thing as forgiveness and let us not forget it. Ninth: the spokesman exposes a mistake and demands retribution to its fullest. The only person who does not make a mistake is the person who never attempts to do anything. The spokesman who uses such an approach is a damnable individual. He is not seeking truth; he is attempting to create confusion and hide the truth. Tenth: the spokesman intimidates the witness — threatening him with the penalties of perjury — all calculated to make the witness perjure himself much to the benefit of the defendant. Eleventh: the spokesman proceeds to ask a multitude of technical questions for the purpose of exhausting the jury. A recess is then called before the spokesman summarizes his case. When the jury returns refreshed and attentive, the spokesman proceeds to summarize the case — presenting such facts that are helpful to his client and omitting such facts that are detrimental to his client. The summary is brief and loaded with pathos. Twelfth: it must be remembered that all too often the judge is an ignorant politician who referees the court in such a manner as to make a farce of justice.

The administration of justice requires knowledge, understanding and wisdom. The judge should make certain that fact not fiction is presented and that the presentation follows an orderly and understandable sequence. The judge must make certain that the enthusiastic spokesman does not assume the role of judge, jury, and executioner.

The law governing human conduct is basic and does not change. The interpretation is the thing.

Primary Tuberculosis and Converters and The Rationale of Treatment*

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Seven years ago, when isoniazid first came into use, there was a flare-up of hope that it was the drug everyone concerned with tuberculosis control had wished for—a quick acting drug that would sterilize tuberculous lesions and wipe out primary foci of infection, with no ill effects to the patient. In the ensuing months and years, optimism was tempered by experience. Isoniazid was not found to work miracles, but still it proved to be so effective against pulmonary tuberculosis that it has changed profoundly the outlook not only for the individual patient but for control of the disease.

It was not very long after the effectiveness of isoniazid in arresting progressive pulmonary tuberculosis was established that a number of authorities began to suggest the consideration of the drug's prophylactic possibilities. However, other equally qualified people were less enthusiastic about this proposal, and the Public Health Service felt that only large, carefully controlled long-term studies would answer the questions.

The first research along these lines involved experiments with laboratory animals in which isoniazid used prophylactically proved to be sufficiently effective to encourage us to undertake human trials.

The first opportunity to look critically at the prophylactic potential of isoniazid in humans came at Bellevue Hospital in New York City where Dr. Edith Lincoln's work suggested that the drug was effective in preventing extrapulmonary complications in children with primary tuberculosis. Since larger scale studies were necessary, the Public Health Service and a number of pediatricians started a cooperative program in January 1955. By June 1957, some 2,750 children were under observation in 33 clinics in the continental United States, San Juan, Mexico City, and Toronto.

This study was designed to demonstrate what happens to children with asymptomatic primary tuberculosis when they are given small daily doses of isoniazid and when they do not receive any other treatment. Criteria for diagnosis were:

1. Any child under three with a reaction of 5mm. of induration to the intermediate dose of tuberculin (5. T.U. or 0.0001 mgm PPD).
2. Children three years and older having in addition X-ray evidence of primary tuberculosis.

The isoniazid dosage was 4 to 6 mg. per kilo of body weight taken daily.

The children were divided into two groups of approximately the same size by a random device at the beginning and were treated exactly alike throughout the study except that one group received isoniazid and the other placebo. Each group was about equally divided between boys and girls, and the geographic, racial, and age distribution was about the same. About half of each group was less than three years old, with 10 percent less than one. Another 25 percent were between 3 and 6, and the remaining 25 percent were spread in decreasing numbers from 6 to 16.

Although the plan was simple, its execution raised some rather complicated problems. A placebo had to be developed that could not be detected as being different from isoniazid. It had to look, taste, and smell like isoniazid. To avoid possible bias, only the Public Health Service office in Washington which distributed the pills knew whether the bottles of pills sent out for any particular child contained isoniazid or the placebo.

Each month during the first year of the study when the children were taking the pills, and every three months during the second year, each child was examined for early signs of progressive disease or complications. Whenever any of these signs was detected, the attending physi-

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cian, who of course did not know if the child had been receiving isoniazid or placebo, would decide whether chemotherapy was needed and prepare the appropriate report for the central office, indicating that the child had or had not been taken off the study to receive chemotherapy.

X-rays were obtained when the children entered the study and at specified intervals, and were sent to the central office. A panel of 12 clinical investigators reviewed all available films without knowledge of the child, his clinical condition, or treatment. Each film was reviewed by three panel members and classified by location, kind, and degree of involvement. Approximately 40 percent of the children in both groups had essentially normal pre-study films, while slightly more than 40 percent in each group showed hilar or paratracheal involvement or both. In 16 percent, parenchymal involvement, with or without hilar or paratracheal abnormalities, was noted.

About 11 percent of both groups of children who completed at least 12 months of observation were in daily contact with a case of tuberculosis during some part of the time. Another 14 percent in the isoniazid group and 15 percent in the placebo group had occasional contact with a case of tuberculosis during this same period.

The study did not produce data showing statistically significant differences in the effect of prophylactic isoniazid treatment on the development of pulmonary complications of primary tuberculosis in children. There were 55 such complications among the children studied—21 in the isoniazid group and 34 in the placebo group during the first year of observation. Most of the pulmonary complications were increased parenchymal lesions, interpreted as atelectasis due to endobronchial obstruction. Two children, one from each group, developed cavities, presumably tuberculous.

Since the most serious complications of primary tuberculosis in children are the extrapulmonary, the results of the study with regard to these are of special importance. Results of the first year of the prophylaxis trials indicated that isoniazid prevented 80 percent of the complications that would have been expected to develop. Among the 1,394 children taking isoniazid there were only two definite extrapulmonary complications while 27 were observed among the 1,356 children in the placebo group. In addition, there were four extrapulmonary complications in the isoniazid group classified as "possible" because the evidence was inconclusive, and two in the placebo group. Even when these "possible" complications are included, the difference is still clearly significant on statistical analysis.

As gratifying as these results are, it cannot be said that they were unexpected. However, there is less general agreement of opinion about whether isoniazid will have some effect on the course of primary tuberculosis when it is no longer being taken and this aspect of our study which involves long-term observation of the children after the drugs are stopped is of great importance.

In order to keep the post-drug observations unbiased, the identity of medication was withheld during the second year of observation. By now findings have been analyzed on slightly more than half of the children after they have been observed for a full 12 months beyond the year of medication. There were only three definite extrapulmonary complications among the 750 children in the isoniazid group who have completed two years of observation, while six such complications appeared in the children who had taken the placebo.

Extrapulmonary complications of primary tuberculosis in children of the sort observed in this study are generally believed to result from the hematogenous spread of the bacilli from the primary lesion, and this seeding is thought to begin soon after the development of the primary infection. If this dissemination is a usual occurrence, it is obvious that most seedings remain undetected and only a few produce serious complications.

From this study it is apparent that isoniazid, taken during the time when seedings are believed to occur, can prevent most complications. Further, the results may indicate the nature of isoniazid's action. Isoniazid could act at 3 points: at the site of implantation, in the blood, or at the primary lesion itself.

That isoniazid can act on recent seedings at the site of implantation is strongly suggested by two observations. First, some complications in the placebo group appeared very early. The implantations from which they resulted had probably occurred before the start of the study, although no symptoms were discernible. As the design of the trial ensured that isoniazid was the only variable between the two groups of children, it is permissible to assume that there were similar implantations in the isoniazid group which never progressed to detectable lesions. Secondly, there were 5 other complications in the placebo group in addition to the 29 already discussed. Although these 5 complications were first detected while the children were taking placebo, they were judged by the Review Board to have been present in a very early stage at the time the children entered the study. It may be assumed that similar incipient complications in the isoniazid group were aborted by the drug. These findings indicate isoniazid's action at the site of implantation.

Evidence of isoniazid's activity in the blood is less clear. Complications in the placebo group appearing *after* the first few weeks were in all probability the result of hematogenous spread which occurred *while* the children were taking placebo. The great reduction in the number of complications in the isoniazid group could have resulted from isoniazid's action either in the blood or at the site of implantation.

Finally, two findings suggest that isoniazid may act on the primary lesion itself. First, some pleural effusions are believed to result from hematogenous spread and others from a direct extension of the primary lesion into the pleura. Direct spread into the pleura was observed only among children taking placebo. This suggests that isoniazid's action on the primary lesion prevented this type of pleural effusion. The second point is based on the finding that unfavorable pulmonary changes occurred somewhat more frequently among children receiving placebo. The reduction accompanying the administration of isoniazid must have been produced by the drug's effect on the primary focus.

There is a strong indication in this material that isoniazid, acting at one or all of these points, prevents the effective dissemination of tubercle bacilli from a primary lesion. Since the sequelae which appear soon after the detection of the primary have been prevented by effective interference with their seeding, it seems reasonable that other implantations which take longer to develop into clinical disease may also have been prevented. Thus, the effect of giving isoniazid to children with primary tuberculosis may well be to prevent endogenous reactivation later in life. Prolonged observation of the children in this study may give information on this point.

In the meantime, the Public Health Service is recommending on the basis of findings of the first years of observation that infants under one with a reaction of at least 5mm. of induration to the intermediate dose of tuberculin and children from one through three with a 5mm. reaction and, in addition, X-ray evidence of primary tuberculosis be given a daily dose of 5mg. of isoniazid per kilo. of body weight for a year.

The next venture of the Public Health Service in tuberculosis prophylaxis in man got underway in 1957 among household contacts of newly discovered cases of tuberculosis, and among newly discovered cases of suspect or inactive tuberculosis whose present condition did not require treatment. This program is now operating in about 90 communities in 20 states, in Puerto Rico, and Mexico, and about 30,000 persons are enrolled.

The participating health departments tuberculin test and X-ray the household contacts of each newly discovered case of pulmonary tuberculosis. Any contact with evidence of active tuberculosis is referred to his family physician or a tuberculosis clinic for treatment. The others are asked to enter the study.

As in the trials among children, no one except the Central Office of the Public Health Service in Washington, D. C., knows which participants are receiving isoniazid and which are receiving placebo. Every participating household is given a bottle containing a month's supply of enough pills for each adult member of the family to receive a daily dose of between

3 and 7 mg./Kg. of body weight and for each child to receive a daily dose of between 5 and 10 mg./Kg. Once a month for the next 11 months a member of the household picks up a new supply of pills at the health department and returns the previous month's bottle. The quantity of pills remaining in the returned bottle is measured and recorded; then the bottle and pills are destroyed unopened. The number of pills remaining is a clue to the regularity with which the family has been taking pills.

A quarterly visit to each family is made by a nurse from the health department, at which time she attempts to ascertain how regularly the various family members are taking their pills and whether or not the source case is still at home. Any person with suspected clinical signs of tuberculosis is referred to the clinic for examination.

The procedure is essentially the same for the tuberculosis suspects, except that the suspect, rather than his family, is the study member.

At the end of the 12th month, medication is discontinued and study participants return to the clinic for a repeat tuberculin test and X-ray. If at this time the isoniazid households should have as much tuberculosis as the placebo households, it would not be known whether this is a failure of isoniazid or a failure of participants to take pills. It would be known, however, that to distribute isoniazid as a prophylactic in the way it is being done in this study is not a useful tuberculosis control measure. If, on the other hand, isoniazid households should have less tuberculosis than placebo households, it would be known that prophylactic isoniazid administered in this way is effective to at least this degree.

The Public Health Service tuberculosis prophylaxis trials have been expanded recently to include the institutional groups. This phase of the program has been initiated in mental institutions in Georgia, Massachusetts, Michigan, and Wisconsin, and now includes about 21,000 patients. As in the household contact study, the populations are divided by a randomization device into two groups, one to receive isoniazid, the other placebo. The medication is usually assigned by wards and can be more carefully controlled than in the household contacts.

This is also a double blind study in that neither the participants nor the persons responsible for their medical supervision have any notion of whether a person is taking isoniazid or placebo. Therefore, in watching for the development of tuberculosis, the physician cannot be influenced by knowledge that the patient is or is not receiving isoniazid. The 12-month results will give information on the immediate effect of isoniazid, but the more important results will come only with longer observation. Since these trials include large numbers of people, no attempt is being made to reexamine the participants after the first year. However, a system has been set up whereby reports on all tuberculosis cases and deaths that occur during the ensuing years in the localities in which these persons were originally observed will be sent to the study's central office to be checked against the roster of participants in the trial. In addition, efforts are being made to establish rapport with persons coming into the trial so that they will agree to inform the study of their whereabouts every six months for the first two years, and once a year thereafter. Certain assumptions with respect to tuberculosis can be made if even limited information can be obtained. If it is known, for example, that a person is working, it is also known that he is not in a sanatorium, that he is not dead from tuberculosis, and that he is well enough to be employed.

From those who are tuberculin negative at the time they enter the program it is hoped to learn at the end of 12 months whether the use of isoniazid has prevented new infections and new disease. But even if it were found that isoniazid should work almost miraculously in the uninfected, it still would be a very limited tool for the control of tuberculosis, largely because the greatest risk of developing the disease is not among non-reactors, but among those who already are infected—the estimated 40 million tuberculin reactors in this country.

It is quite likely that less tuberculosis will be found developing among reactors who are on isoniazid than among those

on placebo as long as pills are being taken. It is inconceivable, however, that anyone would advocate that 40 million reactors should take isoniazid every day for the remainder of their lives. Therefore, the really important question is whether having taken isoniazid for a year sufficiently reduces the risk of developing active tuberculosis in the ensuing years to make wide use of the drug for this purpose a practical measure.

While these studies were undertaken specifically to evaluate the prophylactic effectiveness of isoniazid, carefully analyzed observations on such large numbers of people can also be expected to produce other information. The evidence discussed earlier about the possible site of isoniazid's action—whether it is at the primary lesion, in the blood, or at the point where infection is seeded is an instance of this kind of by-product evidence. It is also expected that some useful data about the risk of tuberculosis among household contacts of active cases, and about the age-race-sex characteristics of reactors who are at greatest risk of developing tuberculosis will be obtained. If isoniazid proves to reduce the risk, this information will be extremely important in selecting persons to receive it.

Isoniazid is not the perfect drug. It is, however, a very good drug, and by means of studies such as have been presented, it is possible that even more benefits can be obtained from it. The more precisely the circumstances under which it is effective can be defined, the more useful it will be.

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What Is Your Diagnosis?



FOR ANSWER SEE PAGE 501

A TEACHING SEMINAR
FROM THE
UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE

The Diagnosis of Childhood Tuberculosis With Emphasis on Tuberculin Skin Testing

W. T. KNIKER, M.D., INSTRUCTOR

INTRODUCTION

Tuberculosis remains a great epidemiological and medical problem in Arkansas. In 1958, there were 7,759 known cases in the state with 1,085 newly reported cases, 209 of which were under 24 years of age (1). White patients outnumbered colored patients about three to one. The state's death rate of 13.5 deaths per 100,000 population was about twice the national average, and only below that of Arizona and Montana (2).

The reasons for our state's predicament are varied and are not in the scope of this paper. A 1955 nationwide study revealed that nearly half of known active cases are not hospitalized but treated at home. About 40% of these do not take medications and almost half left sanitaria against medical advice (3). In addition, a large number of undiagnosed infective tuberculous individuals lives in every area, resulting in an ever-present reservoir contaminating other adults and children in the community.

IMPORTANCE OF EARLY DIAGNOSIS IN CHILDHOOD

For years, consideration of the child in relation to tuberculosis was largely neglected. This was due to the belief that primary or childhood tuberculosis is a benign infection with little consequence to the individual or his environment (4) (5). Such a conclusion can be challenged by the fact that there would be no serious tuberculous disease in children or adults without an initial primary infection. In 1,000 cases of childhood tuberculosis, 8% developed reinfection type pulmonary involvement one to fourteen years after the primary type was diagnosed (6). Though some of these cases reflected continued exposure, many seemed to be endogenous. Furthermore, recent experience has vividly demonstrated that tuberculosis during childhood is far from innocuous, and that it is imperative to make the diagnosis as early as possible.

The age of the patient at the time of infection is highly significant. Infants infected under a year of age have a mortality up to 30% (7); this percentage drops slowly until the third year (8). Although ages three to ten have a relatively low mortality, complications and progressive disease become more frequent with pubarche and menarche (6). Without therapy 95% of infant deaths are due to four complications: 60% from meningitis, 10% from miliary involvement and 25% from protracted hematogenous or pulmonary spread (9).

Well controlled studies have demonstrated that treating tuberculous infants prophylactically drastically reduces their death rate. In one study involving 2,750 children with primary asymptomatic tuberculosis, half received chemotherapy and the other half placebos for one year (10). Almost six times as many extrapulmonary complications occurred in the latter group. Thus, the small doses of isoniazid that were employed proved up to 80% effective in preventing serious complications. At the Bellvue Hospital, mortality of childhood tuberculosis has dropped from 21.5% to 1.5% since the introduction of isoniazid (9).

A second factor is the age of the infection. In any patient, the first few years

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following infection are most hazardous because the more serious complications (tuberculous pneumonia, miliary and meningitic spread, pleurisy, endobronchial involvement) usually occur within the first year (11). If treatment is started during this time these can be avoided to a large extent.

Thirdly, the diagnosis of tuberculosis in a child often leads to discovery of contacts hitherto unsuspected. Pre-school children usually pick up infection from someone in the home. In a study of 335 infected children contacts could be discovered for 89% of them; 35% were in the immediate family, 33% were other relatives while 21% included babysitters, lodgers, and friends (12). Significantly, it was found that 74% of those children had been infected by tuberculous adults whose disease had not been diagnosed. It becomes obvious that diagnosis of primary tuberculosis in a child usually should result in recognition of active adult cases, giving the opportunity to halt further contamination in that environment.

DIAGNOSIS OF CHILDHOOD TUBERCULOSIS

The pathologic-physiology of primary tuberculosis determines which diagnostic measures are likely to be useful. In this country 95% of the lesions are pulmonary, following inhalation of bacilli (11). The "primary complex", consisting of a parenchymal tiny pneumonic infection and inflammatory enlargement of the regional (hilar) nodes, reaches a peak in several months. The tuberculin skin test becomes positive four to six weeks after infection. Healing slowly follows, completed in four or five years (13). Typically, symptoms are not recognized, although some fever, malaise, and other nonspecific symptoms briefly occur in most cases. Certainly "classical" signs of tuberculosis such as weight loss, night sweats, coughing, hemoptysis, and chest pain never occur in the absence of pulmonary complications.

It is apparent then that nothing in the disease itself suggests primary tuberculosis; in fact, one has to look actively for it to find it. Its detection nearly always follows (a) "routine" studies of children at medical facilities, schools and institutions or (b) screening of family members when tuberculosis is diagnosed in a possible contact.

Certainly, actual culture of the invading organism is the most definitive way to assure correctness of diagnosis in any infectious disease. However, in primary uncomplicated pulmonary disease, tubercle bacilli do not gain access to the bronchial tree and these patients are thus not contagious (14). Gastric aspirates and bronchial washings are negative on culture or smear, unless pulmonary progression has occurred (12).

Roentgenologic examination of the lungs may be helpful. Usually the primary subpleural focus is invisible, but the hilar lymph nodes often are significantly enlarged (11).. The latter occasionally may be associated with atelectasis or pneumonia. Although tuberculosis may be strongly suspected, histoplasmosis, other mycoses, neoplasms and bacterial pneumonitis at times cannot be ruled out. Finally, it is recommended that the use of chest roentgenograms as a case finding tool be reserved only for those children who are tuberculin positive on skin testing (15).

Serological testing by agglutination or precipitation techniques is not yet developed sufficiently to be of any real help in the diagnosis of childhood tuberculosis. In our laboratory, under the direction of Dr. D. C. Heiner, sera of several hundred tuberculous patients from McCrae Sanitarium were tested against crude antigenic filtrates of M. tuberculosis, using a micro slide method of double diffusion in agar gel (16). Under the age of twenty, a small proportion of patients demonstrate precipitating antibodies, even with advanced and progressive disease.

Skin testing with tuberculin is by far the most sensitive and reliable means of diagnosis throughout childhood (17). Because it is inexpensive, can be carried out anywhere without special facilities, and is quite innocuous, it deservedly has been widely employed. Since tuberculosis is no respecter of economic status or race, every child ideally should be skin tested often and regularly. The Tuberculin Committee of the American Academy of Pediatrics recommends that testing begin early in infancy, be repeated as frequently as possible until the age of three, and be done once a year thereafter (17). When frequent testing is carried out, a conversion

to positive implies recent, and therefore, active infection. Institution of therapy prevents dangerous complications in that individual, and the screening of possible contacts can locate one more community focus.

THE TUBERCULIN TEST TODAY

Because medical personnel and health agencies depend so much on the skin test in the diagnosis and control of tuberculosis, some discussion as to its correct application and interpretation is indicated. This can be divided into the following sections: (A) Materials, (B) Method, (C) Dose, (D) Recording of reaction and (E) Interpretation of reaction.

(A) MATERIALS:

Only old tuberculin (OT) and purified Protein Derivative (PPD) are commonly employed for skin testing. A specially purified tuberculin, prepared under rigorous controls, serves as the International Standard (18). Known as PPD-S, it is not yet widely used. PPD is generally recommended as the tuberculin of choice, although OT is equally acceptable to many. OT is considered to be disadvantageous by some who feel it is less specific, and impossible to use comparatively because of no standardized means of production (19).

It may be that the preference for PPD over OT is more theoretical than actual. As will be discussed in a later section, both tuberculins may cause non-specific reactions in patients not exposed to tuberculosis. Furthermore, OT has some distinct advantages: (1) OT is quite stable, one preparation usable up to several months, and (2) OT is cheaper than PPD. Commercial PPD indeed has some disadvantages: (1) Once diluted, it loses potency rapidly, becoming unreliable after one week; (2) the PPD products produced by different firms vary in antigenic potency when compared to OT or other PPD products (20).

A colleague, Dr. Betty Lowe, and I are presently comparing the skin reactions caused by OT and several PPD products in children seen at the University of Arkansas Medical Center. In a number of cases exhibiting reliable clinical evidences of primary infection, either the OT or PPD-S test has been definitely positive, while the other was negative or equivocal.

It would seem that there is yet no clear-cut advantage of one tuberculin over another. This is implied by many experts in the use of tuberculin skin testing who comment on the interchangeability of the products (17) (21).

(B) METHOD:

The Vollmer Patch test, though still employed by some, does not seem to be as reliable as the Mantoux intracutaneous tuberculin test (17). A recent study of 855 California school children compared the two (22). By both methods, 83 were positive. However, 113 children were positive only to the intracutaneous test, and only 3 reacted to the patch test and not to the other. Probably the chief objections to the patch test are that an unknown amount of tuberculin contacts the skin, making interpretation difficult, and patches fall off the skin easily.

The technique of administering the intracutaneous tuberculin test is well described in Diagnostic Standards and Classification of Tuberculosis, 1955 edition, published by the National Tuberculosis Association (23). It should be emphasized that the only proper and reliable injection is one which produces a pale rounded elevation, at least 5 mm. in diameter, dimpled by hair follicles. This is more easily accomplished by using a sharply beveled 25-27 gauge needle, holding the syringe parallel to the skin of the forearm, and inserting the needle as superficially as possible with its bevel up. Any injection not causing the described skin elevation should be repeated, as its interpretation is totally unreliable.

Syringes used for coccidiodin, histoplasmin, PPD, and OT should never be interchanged. Protein residues absorbed to the glass can cause confusing positive reactions when the individual is strongly positive to the residual material and not at all to the principle material injected.

(C) DOSE:

For routine case finding, most experts recommend a dose of 5 Tuberculin units which is an OT dilution of 1:2000 or the "intermediate" PPD quantity, amounting to 0.0001 mg (21). This is based on conclusive studies showing that 95-99% of all patients infected with tuberculosis will react positively to that dose (19) (20). According to Furcolow, smaller doses will miss a significant number of cases (17);

these should be applied only to avoid a skin slough when active disease is strongly suspected.

What about the patient, strongly suspected of having active tuberculosis, who tests negatively to 5 TU of tuberculin? For years it has been recommended that such an individual be retested with a stronger concentration, such as the 250 TU dose (OT 1:100 or PPD, second strength) (19). Should the latter amount cause a reaction, tuberculous infection formerly seemed substantiated. Controversy now exists regarding the acceptability of this belief. Some workers have felt that positive reaction only to such concentrated tuberculin might well represent a nonspecific response to chemical irritation. However, David T. Smith's group found that while extremely concentrated PPD injections could cause chemical irritation which was marked within six hours, it had practically disappeared by 48 hours (24). They feel that chemical irritation is not the explanation for a significantly positive skin test after 48 hours.

Another doubt concerning reliability of positive reactions to concentrated tuberculin was projected as a result of extensive U. S. Public Health Service surveys conducted by Palmer, Edwards, and co-workers (25) (26). Massive statistical evidence has led to the conclusion that although a positive reaction to concentrated tuberculin may indicate infection by the tubercle bacillus, it may also reflect exposure to atypical Mycobacteria which cross-react with tuberculin. Such infections are especially common in the Southern states.

It is known that some tuberculous patients who are dehydrated, febrile, moribund, receiving steroids, or who have concurrent carcoidosis or Hodgkins' disease may be anergic, being positive only to 250 TU of tuberculin or not positive at all (21) (23). Katz and co-workers, using intermediate PPD found 7.2% of 416 tuberculous patients to be nonreactive. However, on repeating the test with the same dose of PPD, only 1.7% remained non-reactive and all but one of these seven patients had obvious causes for anergy (27). This would suggest that repeating the 5 TU dose may be even more rewarding than applying a stronger dose, since positive reactions with the latter can be interpreted less confidently.

(D) MEASUREMENT AND RECORDING:

Even if a known amount of a reliable tuberculin was c o r r e c t l y injected, the value of the skin test may be lost if the reaction is observed and recorded improperly. The mere reporting of "positive" or "negative" is completely meaningless, since "positive" may imply (to some people) anything from moderate erythema to induration of several centimeters with skin necrosis (17). Almost as useless is the system of plus marks, since wide degrees of skin reaction are encompassed by 1+, 2+, etc. These gross methods are particularly unsatisfactory because valid interpretation depends greatly upon accurate measurement of the reaction.

A rule or tape, calibrated in millimeters and centimeters, should be employed. Careful measurement of both erythema and induration should be made transversely across the forearm. In white patients erythema rarely is less extensive than induration, usually exceeding the latter. But in colored patients, extent of erythema may be almost impossible to determine and should be so noted. To accurately assess extent of induration it is frequently helpful to run the finger tip over the area, because the tactile sensation may far exceed visual accuity in accuracy.

Some confusion exists as to the best time to read the test. This is explainable since reactions are maximal after 48 hours on some patients, and after 72 hours on others, when readings are made on both days. A comparative study of tuberculin reactions based on 499 tests revealed that 85.4% of the time readings at both times agreed (20). However, there was a significant decrease in reaction in 11.8% of the cases and an increase in 2.8% of the cases, between 48 and 72 hours. It would seem ideal to read tests at both times. However, if only one reading is feasible, 48 hours after injection is the preferable time.

(E) INTERPRETATION:

Recent findings based on large statistical surveys and correlation of the degree of tuberculin reaction to clinical condition have brought about modifications in inter-

pretation. Some of the important considerations include the following:

(1) A negative response obviously is any test showing no erythema or induration. A probably negative test exhibits less than 5 mm. of induration (21). If there is heavy exposure to a contact or if active tuberculosis is strongly suspected, the test should be repeated preferably using the same material and another tuberculin of comparable concentration.

The presence of moderate or marked erythema, considered negative by many, is not to be ignored necessarily. Often it reflects an overly deep injection of tuberculin in a tuberculous individual who subsequently is positive on proper testing (23). Sometimes it reflects altered skin reactivity to the particular tuberculin; testing with another product may show a positive response (20). Occasionally, patients with proved active atypical mycobacterial infection show marked erythema with or without some induration (20).

(2) Positive reactions have been considered to be those showing 6 mm. or more of induration. Furcolow's group has shown that the larger the reaction, the more likely the individual will demonstrate active infection (28). Almost all cases of active disease show induration of 10 mm. or more, the average being around 16-20 mm. Therefore a reading of 10 mm. or more can be accepted as unequivocably positive, and representing infection by M. tuberculosis (19) (20).

(3) Readings of 6-9 mm., considered weak-positive, may mean different things:

a. Newly developing skin allergy in a recently infected individual.

b. Relative anergy associated with systemic aberrations.

c. "Fading" skin allergy as the tuberculous infection heals or becomes inactive, a phenomenon frequently seen in children (29).

d. Fault in the test such as improper injection, loss of potency of the tuberculin, peculiar individual response to the tuberculin product, etc.

e. Infection by an atypical Mycobacterial organism which cross reacts with tuberculin.

Apparently, such infections usually occur unrecognized, although these organisms have been isolated in individuals ill with a disease resembling tuberculosis. Presumptive evidence for atypical Mycobacterial infection in seemingly healthy individuals is derived by finding a large positive skin reaction to PPD made from the atypical organism and by finding a weakly positive or negative response to ordinary tuberculin (26).

SUMMARY

1. Primary tuberculosis in childhood is not necessarily a benign disease, complications and death occurring particularly at certain ages and soon after infection.

2. Early diagnosis permits institution of chemotherapy soon enough to prevent serious complications. It also can halt environmental contamination by the identification of infectious contacts.

3. Although bacteriological techniques, serological tests, and roentgenography may be helpful, the diagnosis of primary tuberculosis rests principally upon the tuberculin skin test.

4. The tuberculin skin test is remarkably sensitive, reliable, and safe. However, its value as a diagnostic tool depends upon the correctness of its administration, recording of subsequent reaction, and the interpretation of that reaction.

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Problems in Prescribing and Dispensing Narcotics

J. T. Herron, State Health Officer

There has been an increase in narcotic addiction in the past several months in Arkansas. A number of addicts have been apprehended and prosecuted. However, there are still quite a few in the state as permanent residents and transients are passing through continuously.

The following suggestions are made in an effort to alert the physicians and pharmacists of the state as to the problem with the hope that illicit use of drugs can be kept to a minimum.

The State Health Department is charged with the responsibility of administering the *Arkansas Uniform Narcotics Drug Act* which follows very closely the Federal Act.

It is the responsibility of physicians to cooperate with pharmacists, and for pharmacists to cooperate with physicians in complying with narcotic laws and regulations. A tendency on the part of both to become lax, or to fail to remain alert, may result in a violation with consequent possible embarrassment to all concerned, bad relations between physicians and pharmacists and poor public relations.

ONE HAUL, FROM ONE DRUG STORE, BY TWO ADDICTS



The above drugs were stolen from a drug store in a small town by two drug addicts who were also pushers.

The State Health Department is desirous of assisting both physicians and pharmacists in complying with the provisions of the Narcotic Act (law) and carrying out its responsibility in the suppression of addiction.

The following is a list of "DON'TS" for the PHYSICIAN, and a list of "DON'TS" for the PHARMACIST, with explanatory notes to the right of each, regarding the handling, storing, prescribing, and dispensing of narcotics. It is sincerely hoped that this timely information will be helpful to all, and that laxity, ignorance or innocent intent will not be the reason for any physician or pharmacist to be caused embarrassment in any way.

The following suggestions are made by the State Health Department:

Narcotic "DON'TS" for the Physician

Don't leave prescription pads around. Don't have your narcotic number printed on your prescription blank.

Addicts want them for effecting narcotic forgeries.

Don't write a narcotic prescription in lead pencil.

Avoid writing any Rx in pencil, many are changed to call for morphine. Narcotic Rx are not acceptable written in pencil.

Don't write for narcotics this way:
Morphine HT ½ # X or
Morphine HT ¼ # $\overline{10}$
Several X's or zeros can be added to raise the amount. Use brackets or spelling.

Don't carry a large stock of narcotics in your bag.

Addicts are on the lookout for these in doctors' offices and cars.

Don't store your office supply where patients can get at it.

Avoid storage near sink or urinal. The patient may ask to use these. Narcotics should be under lock and key.

Don't fall for a good story from a stranger claiming ailment that usually requires morphine.

The addict can produce bloody sputum, simulate bad coughs or other symptoms. Make your own diagnosis.

Don't give a narcotic Rx to another without seeing the patient.

Addicts have posed as nurses to get doctors to prescribe narcotics.

Don't write for large quantities of narcotics unless unavoidable.

Diversion to addicts is a profitable business; as much as $5.00 may be paid for ¼ grain M.S.

Don't prescribe narcotics on the story that another MD had been doing it.

Consult that physician or the hospital records whenever possible.

Don't leave Rx's signed in blank at the office for nurses to fill in.

Signed blanks are bad practice and many have been stolen by addicts.

Don't treat an ambulatory case of addiction. Addicts must be under proper control.

Addicts go to several MDs at a time. Notify State Board of Health if you are suspicious.

Don't dispense any narcotics without keeping a record of it.

Bedside and office administration are permitted without record *provided* it does not exceed the equivalent of ½ grain of morphine in any consecutive 48 hours.

Don't try to buy your office narcotic needs on Rx blank.

The law requires you to use an official order form.

Don't resent a pharmacist's call for information about a Rx you may have written.

The pharmacist is held responsible for filling forgeries. Please cooperate.

Don't hesitate to call the Division of Food and Drug Control of the State Health Department of the State Health Officer.

Your inquiry or information will be held strictly confidential.

Don't fail to keep an office record of every written or telephoned prescription.

This record will enable the physician to verify inquiries made by the pharmacist and eliminate certain dangers of forgery.

Narcotic "DON'TS" for the Pharmacist

Don't leave prescription pads lying around.

Caution the doctors you supply. Addicts want them for effecting narcotic forgeries.

Don't leave narcotics exposed near your dispensing counter.

Drugs disappear this way. Check receipts on your order forms.

Don't accept a narcotic prescription written in pencil.

It is not a valid order even when written by a physician.

Don't fail to scrutinize prescriptions when written thus:

Morphine HT ½ # X or

Morphine HT ¼ # $\overline{10}$

Several X's or zeros can be added to raise amounts. Use brackets or spelling.

Don't carry a large stock of narcotics.

Only a three months supply, or less, is good practice. Addicts are breaking into pharmacies and hospitals to get their drug needs.

Don't leave the key inserted in the lock of your narcotic cabinet.

Keep cabinet locked. Make it hard to effect robberies. Keep stock in a safe, if possible.

Don't place your narcotic stock where it is accessible to others.

Avoid storage near sink or toilet. Patrons may ask to use these.

Don't leave anyone alone near the prescription room of your pharmacy if you can avoid it.

Cabinets have been pilfered this way. Addicts pose as salesmen, or ask admittance to your prescription room on some pretext.

Don't become rattled by a rush request to fill a narcotic prescription.

Claim for emergency use may be made to create confusion and pass a forgery.

Don't be taken in by a person wearing a white uniform presenting a narcotic prescription.

Addicts have posed as nurses to mislead pharmacists and put them off guard.

Don't fill telephone orders for narcotics unless you are assured that a prescription will be available upon delivery.

Bogus doctors' calls are made to effect delivery to addicts. Watch change of package racket along with this method.

Don't fill prescriptions for unusual quantities of narcotics unless checked with physician.

Diversion to addicts is a profitable business as much as $5.00 may be paid for ¼ grain MS.

Don't refill narcotic prescriptions without getting a new prescription.

Fairly large shortages eventually occur through this practice.

Don't hesitate to call the physician about a narcotic prescription you may question.

The pharmacist is held responsible for filling forgeries. The doctor's cooperation should be sought.

Don't supply a doctor with his office narcotic needs on a prescription blank (except certain solutions).

The law requires him to use an official order form filled by a wholesale druggist.

Don't dispense any narcotics without keeping record.

You must account for the distribution of your purchases.

Don't break the law to accommodate others, or for professional expediency.

Explain the regulations. The patron or physician will cooperate if he sees the point.

Don't hesitate to call on the Division of Food and Drug Control of the State Health Department, or the State Health Officer.

Your inquiry or information will be held strictly confidential.

New Members . . .

A new member of the Faulkner County Medical Society is Dr. Sam V. Daniel. He is a native of Marshall, Arkansas, and received his preliminary education at the University of Arkansas. His MD degree was obtained from the University of Arkansas School of Medicine in 1956. Dr. Daniel served in the United States Air Force from 1957-1959. He has opened his office at 922½ Front Street in Conway.

A new member of the Faulkner County Medical Society is Dr. Wanda Jean Stephens. She is a native of Little Rock and received her preliminary education at Hendrix College from which she received a B.A. degree. Her M.D. degree was obtained at the University of Arkansas Medical School in 1958. Dr. Stephens is Medical Director at the Arkansas Children's Colony in Conway.

Answer—What Is Your Diagnosis?

RICKETS

This 6 month old colored male was admitted because of his respiratory infection. He had been on powdered non-fat milk only all of his life with daily orange juice but no supplementary vitamins. Oatmeal was started at 4 months but had not been taken well. Development was poor in that child did not roll over or sit up. He would not grasp objects offered him. He weighed 14½ lbs. Bilateral rachitic rosaries were present.

Laboratory data revealed WBC—20, 200, Hgb.—8.9, hematocrit 31 and RBC 3,320,000. Protein 5.8 with an AG ratio of 4.5 to 1.3 and BUN 4.5. Alkaline phophatase of 152.4 King Armstrong units.

The films show characteristic changes at the hips and ankles but the changes are best seen at the knees. The epiphyseal plates are widened and frayed with splaying of the metaphyses. The bone shafts are not osteoporotic. There is apparently normal trabecular structures but the usual trabecular coarsening and bowing of rachitic bones is not developed.

Editorial

Exclusive Third Party Fee Payment

Alfred Kahn, Jr., M.D.

Present in some states is an insurance contract which states that the physician will accept as full payment the fee offered by the insurance carrier; this proviso obtains if the patient's income is below a certain figure.

The question immediately arises — should a third party set a physician's fee. Among professions, it has been customary for the doer and the recipient of the service to set the fee. A sliding scale of fees dependent upon many circumstances is necessary in many types of medical practice, especially surgery. For example, its obvious that a single man earning $300 per month could pay more than a married man with five children earning $300 per month. One of the unfortunate aspects of the insurance company paying the physician's fee is that the payment for professional service is so often less than the prevailing fee in the area. In the field of Internal Medicine, a majority of the fees offered by insurance carriers are almost ridiculously low.

This editorial is not critical of the payments offered by the insurance companies as such, except in some particular fees, but is an indictment of any policy whereby a physician has to accept an insurance fee as full compensation for his services even though he may feel that it is inadequate. It is readily understood that insurance payments are based on a careful analysis of statistics pertaining to costs of types of illness, etc., and the limiting factor is to a large extent the premium charged the patient. Physicians could be paid more if the patient's premiums were higher. The premium has to be priced, like any commodity, at a figure at which it will sell. With current premium charges the companies are not able to pay physicians the prevailing fees, and because of this it is perfectly fair for the physician to charge his patient enough additional fee to bring his charge in line with his customary compensation.

The results of third party intervention in a profession is usually bad. This agreement to accept an insurance carrier's fee as total payment could eventually result in a drift of patients to a limited group of physicians, with the basis of the decision being purely economic on the patient's part. Eventually the carrier could wield wide influence in the profession. Whether an agreement between the insurance carrier and the physician might lead to a complete loss of the patient's right to choose his physician is a matter to speculate about. This has happened in certain mining communities and certainly in this state would represent a very unwelcome change in physician-patient relationship.

The physicians' professional ability fairly tendered should be the basis of his selection by a patient. He should not be chosen by a third party motivated by financial reasons. Organized medicine in this state should take a stand against insurance contracts stipulating a fee less than customary is to be full payment and excluding the physician from billing his patient for the residual.

MEDICINE IN THE NEWS

Patient Plan Announced For Medical Center

LITTLE ROCK, Mar. 11 — A new Welfare Department patient plan that would give the University Medical Center an additional $400,000 annually was announced today.

The plan provides an out-patient clinic at the Medical Center for welfare clients.

Governor Orval Faubus and Welfare Commissioner Carl Adams made the announcement jointly. The plan replaces a former Welfare Department program at the center. Last year the department dropped the program, saying similar outpatient services would have to be established in hospitals throughout the state if the one at the center was retained. Faubus and Adams said weeks of work went into the new plan. They said the climax occurred yesterday when approval was obtained from the federal government, the Arkansas Hospital Association and a committee of the Arkansas Medical Society. Under the plan, the center would get extra state money and federal matching funds.

The Month in Washington

WASHINGTON, D. C. — Congress has been warned against acting on legislation to provide health care of the aged before receiving the recommendations of next year's White House Conference on Aging.

Rep. Noah M. Mason (R., Ill.), ranking minority member of the House Ways and Means Committee which handles such legislation, put in the Congressional Record an exchange of correspondence with former Rep. Robert W. Kean (R., N.J.), Chairman of the National Advisory Committee supervising preparations for the White House Conference next January.

Rep. Mason said the correspondence "reveals the reason why Congress should await the results of the Conference."

"Let us not waste the $2 million we have already appropriated to bring thousands of good minds together to suggest solutions to problems of our aging population," Rep. Mason said. "Certainly we should get the benefit of their advice rather than enact legislation in haste and without proper study."

Dr. F. J. L. Blasingame, Executive Vice President of the American Medical Association, also voiced this warning in a radio interview while he was in Washington for conferences with White House aides and Arthur S. Flemming, Secretary of Health, Education and Welfare.

Dr. Blasingame said that it would be "neither practical nor realistic" for Congress to act on such legislation until the White House Conference and other sources had compiled "more conclusive and complete information" on a nationwide basis.

Dr. Blasingame and other AMA representatives emphasized to President Eisenhower's aides and Flemming that the Medical profession is unalterably opposed to any legislation, such as the Forand bill, that would use the Social Security system to provide health care for the aged.

In his letter to Mason, Kean predicted that "in all probability" most of the White House Conference's recommendations would be for "state and local activity" in dealing with the problems of the aged. Kean said that action at the state and local level "seems most effective."

The National Association of Manufacturers charged in a pamphlet that supporters of Forand-type legislation have exaggerated the health care needs of the nation's older people. The NAM pamphlet also said the Forand bill was an entering wedge for a cradle-to-grave compulsory health insurance plan.

Meantime, supporters of the Forand bill — particularly the AFL-CIO, continued an intensive pressure campaign aimed at Congressional approval of the legislation in this national election year when Congressmen are more susceptible to such pressure.

Another Democratic presidential hopeful, Sen. Hubert H. Humphrey (D., Minn.), reiterated his support for Forand-type legislation. He proposed a six-point program for aid for the elderly, including "an extension of the Social Security system to cover the cost of hospital and nursing home care for senior citizens."

Sen. John F. Kennedy (D., Mass.), a

leading contender for the Democratic nomination for President, has introduced similar, but even broader, legislation.

Elsewhere on the national legislative front, prospects brightened for Congressional passage this year of a bill to permit physicians and other self-employed persons to set aside money for retirement.

The Administration, which last year opposed a bill with such provisions, appeared in mid-March to be ready to support it with modifications.

The Administration shift improved the already favorable odds that both the Senate Finance Committee, where a House-approved bill was pending, and the Senate would approve such legislation this session.

The issue of generic names vs. trade names in doctors' prescriptions came to the forefront in the Senate Monopoly Subcommittee's investigation of the drug industry.

Dr. Austin Smith, President of the Pharmaceutical Manufacturers Association, testified at a Subcommittee hearing that "behind brand names lie the reputation, reliability and skill of the manufacturer." He said use of generic terms would restrict a physician's choice as to drugs and would transfer some of the physician's responsibility to the pharmacist.

"By brand name prescription, the doctor orders for a patient a specific product in which he has absolute knowledge of quality, purity and any side effects that might have importance for a particular patient," Dr. Smith said.

Dr. R. B. Robins of Camden, Ark., who accompanied Smith at the hearing, submitted a similar statement. He said he used trade names because: "It is simpler to write such a prescription and I can be assured that no substitution will be made by the druggist — this assures me that the patient will get top quality."

Dr. Robins appeared before the Subcommittee as a private practicing physician and not in his capacity as a member of the AMA Board of Trustees.

Despite this testimony, Sen. Estes Kefauver (D., Tenn.), the Chairman of the Subcommittee, said he hoped physicians would give "serious thought" to use of generic terms. He contended that doctors thus could bring down drug prices by opening the way for small manufacturers to give the major companies "some good, honest, old-fashioned price competition."

President Eisenhower's Conference on Occupational Safety urged stronger x-ray legislation by the states with an aim of protecting consumers and workers against too much radiation.

The three day Conference also said there is need "for effective educational programs to reduce both consumer and occupational exposures to x-rays used for diagnosis and therapy, x-ray installations in industry for product control and related purposes and various x-ray devices, such as shoe-fitting fluoroscopes."

The Conference also recommended intensive efforts to develop better ways of determining safe exposure levels of radiation.

Dr. Robins Makes Statement To Kefauver Committee

Dr. R. B. Robins was asked by Dr. Austin Smith, President of the Pharmaceutical Manufacturing Association, to appear with Dr. Smith when he testified February 23-24 before the Kefauver Committee on drug hearings. Dr. Robins is a former Democratic National Committeeman and he and Senator Kefauver have been personal friends for many years. Senator Kefauver didn't ask Dr. Robins any questions, but asked him to submit a statement. Dr. Robins did this in the form of a letter as follows:

February 24, 1960

The Honorable Estes Kefauver
United States Senate
Washington 25, D. C.

Dear Senator Kefauver:

I was pleased to appear with Dr. Austin Smith at the drug hearings and at your suggestion I want to make the following comments:

(1) You would no doubt want to know my feeling about prescribing drugs by generic name.

It is rather impractical and awkward for a physician to do this in most instances because of the following reasons: Many firms, especially small firms, ped-

dle cheap generic products. I want my patients to have top quality drugs and I want to know what firm is going to supply the drug for my patient. For that reason, I like to use the trade name. It is simpler to write such a prescription and I can be assured that no substitution will be made by the druggist — this assures me that the patient will get top quality.

The same generic drugs are not always equivalent. The U.S.P. LABEL gives no assurance of potency.

(2) My feeling toward advertising and detail men is that they are very helpful to the doctors and in turn to the patients of America and their health. Physicians are intelligent and discriminating. The above two media of communications are educational reminders of the values of various products. A good detail man saves the physician much educational effort by encouraging him to learn more about specific drugs. He brings initial information to the physician sooner than it appears usually in scientific articles and allows the physician an opportunity for questions.

Another point I might stress is that the physician may obtain an ample supply of expensive drugs for his indigent patients. Pharmaceutical companies are very gracious about this.

(3) The third point I want to stress with you is that 85 per cent of our prescriptions can be filled at the drug store for less than $5.00. In fact, over 60 per cent of all prescriptions are $3.00 and under.

Senator, it was a pleasure to visit with you again as our personal friendship has existed over a period of many years.

Please file this personal letter to you in the record of the hearings.

With warm personal regards, I am

Sincerely,

Bob Robins, M.D.

P.S. I appeared at those hearings strictly as a private practicing physician and not as a representative of any organization.

ANNOUNCEMENTS

The Arkansas Medical Society will have its annual breakfast honoring the officers, the delegate of the American Medical Association and the State Executive Secretaries Monday, June 13th at 7:45 a.m., in the Bal Masque Room of the Americana Hotel in Miami. Mr. Chester Lauck formerly of Lum and Abner radio team will be the guest speaker.

The 14th annual Rocky Mountain Cancer Conference will be held in the Denver Hilton Hotel in Denver, Colorado on July 20-21, 1960. Nearly 900 physicians from all over the nation are expected to attend the two-day scientific session, which is work 10 AAGP Category I credits.

Obituary

Dr. J. O. Rush, 92, died February 25, 1960. Dr. Rush moved to Forrest City in 1900 and practiced 58 years in that area until his retirement. He had been a member of the American Medical Society for more than 50 years, was past president of the 50 Year Club of the Arkansas Medical Society and served as secretary of the St. Francis County Medical Society for over 50 years.

Dr. Rush was a member of the Presbyterian Church, and was very active in civic clubs. His wife, Mrs. Cora Peak Rush died in 1946. Dr. Rush was buried in Forest Park Cemetery.

Personal and News Items

Dr. Boyce P. Pryor, Jr., a native of Memphis has opened up offices in the Elaine Clinic, it was announced in February. He was graduated from the University of Tennessee College of Medicine and interned at St. Joseph's Hospital in Memphis.

Dr. Harlan Thomas of Tulsa and formerly of Little Rock, recently was elected president of the Oklahoma Chapter of the American Academy of General Practice.

Dr. George W. Warren has opened his new clinic in Smackover.

Proceedings of Societies

Pulaski County Medical Society met at the Little Rock Air Force Base Officers Club, March 1, 1960. Major Henry C. Moritz, a specialist in aviation medicine for the Second Air Force spoke on "Space Medicine."

A recent meeting of the Lawrence County Medical Association was held with Dr. Lloyd Gregory as host. Dr. Ralph Joseph was elected president of the association. Other new officers are Dr. Jerry Whittington, vice-president; Dr. Gregory, Secretary-treasurer; Dr. J. B. Elders, delegate.

Bowie and Miller County Medical Societies met in February, 1960 in Wadley Hospital coffetorium. Hugh E. Wilson, M. D. of Dallas a noted heart surgeon and research scientist presented a scientific paper to doctor members and to doctors from Oklahoma that also attended the meeting.

The Southwest Arkansas Medical Society met in March. Seventeen physicians and wives from McGehee, Dermott, Lake Village and Wilmot attended. Dr. H. W. Thomas of Dermott, Councilor for the 4th District of the Arkansas Medical Society, spoke regarding the Forand Bill. Officers elected for 1960 are Lonnie Turney, MD, President, and Lee Parker, Jr., MD, Secretary-Treasurer.

The Garland County Medical Society recently met and heard a report that some new drugs being used in the war on cancer in women are "showing promise." Dr. Willis Brown, professor of obstetrics and gynecology at the University of Arkansas Medical Center in Little Rock addressed the society. The society also conducted a regular business session.

Woman's Auxiliary

The Hot Spring County Medical Auxiliary entertained the Malvern Senior girls at tea recently in the home of Mrs. N. B. Kersh. Other guests included representatives from the University of Arkansas School of Nursing, St. Vincent School of Nursing and the Arkansas Baptist School of Nursing. Nurses from the Hot Spring County Memorial Hospital also were guests.

The Sebastian County Medical Society Auxiliary met in March in the home of Mrs. A. S. Koenig. Mrs. Louis Swofford, teacher at the Roger Browning Bost school for the limited children was guest speaker. She also showed a film in connection with her subject, "Mental Health".

The Phillips County Medical Auxiliary sponsored for the benefit of the Ophelia Polk Moore Home a local talent show in April. All net proceeds from the show were turned over to the Helena-West Helena Jacees who conducted the annual drive for the home.

Book Reviews

CHRISTOPHER'S TEXTBOOK OF SURGERY, Edited by Loyal Davis, M.D., Chairman of the Department of Surgery, Northwestern University Medical School, Seventh Edition With 1597 Illustrations on 810 Figures, pp. 1551, published by W. B. Saunders Company, Philadelphia and London, 1960.

This seventh edition of Dr. Christopher's book is now edited by Dr. Loyal Davis. It is probably one of the best textbooks of general surgery published in the English language. There is a wide discussion of various surgical conditions. Different authors are selected for each topic. This book is in no way adequate to teach the technique of performing all of the surgical diseases discussed in it. The author's intention is to provide a broad general background of information rather than a

detailed analysis of each disease. The student and physician will necessarily have to see additional references when studying a particular disease process. Good references are provided. The reviewer would prefer to see a few more diagrammatic sketches provided. This book is heartily recommended as an excellent general textbook of surgery. AK

CURRENT THERAPY—1960. Edited by Howard F. Conn, M.D., Uniontown, Pennsylvania, pp. 808, published by W. B. Saunders Company, Philadelphia & London, 1960.

This textbook of current therapeutics is continued in its previous format. The book is divided up into the treatment of diseases by systems, such as the infectious diseases, the respiratory system, the cardio-vascular system, metabolic diseases, etc. Each disease is handled by a separate author. The selection of authors seems to be good and the information is therefore authoritative. Perhaps the one danger of a text of this sort is that it tempts the physician to rely solely on the brief discussion contained in this book rather than to look up the therapy of a disease that is unfamiliar to him. The back of the book contains a roster of drugs listed by their commercial name. In addition, there is a discussion of poisons and ingredients in various commercial products.

This textbook is heartily recommended. AK

TUBERCULOSIS ABSTRACTS

Sponsored by
The Arkansas Tuberculosis Association

RECOMMENDATIONS OF THE ARDEN HOUSE CONFERENCE ON TUBERCULOSIS

A REPORT OF THE ARDEN HOUSE CONFERENCE ON TUBERCULOSIS, NATIONAL TUBERCULOSIS ASSOCIATION, *Bulletin, February, 1960.*

The United States Public Health Service and the National Tuberculosis Association asked a group of national leaders in public health and tuberculosis control to meet at Arden House in order to define the major gaps in present practices in tuberculosis control and to suggest needed action.

The major recommendation of the Conference is a program for the wide-spread application of chemotherapy as a public health measure for the elimination of tuberculosis in the United States:

Goal: To sterilize that important part of the reservoir of tubercle bacilli that presently exists throughout the country in persons currently suffering from active tuberculous disease, whether presently known or unknown to public health authorities, and in selected persons who previously have had active disease and were inadequately treated.

Technique: Mobilize all resources for a widespread application of the scientifically demonstrated and medically accepted procedures of adequate chemotherapy. These include the proper dosage of appropriate drugs or combination of drugs given continuously over an adequate period of time — procedures that are known to destroy tubercle bacilli in the human body, render the patient's disease noncommunicable to others, and minimize the possibility of reactivation.

The unique aspect of this recommendation lies in its emphasis on such chemotherapy *primarily as a public health tuberculosis control measure* (as well as for the benefit of the individual patient) with all of the connotations of community mobilization and control by public health authorities that this new concept implies. This recommendation obviously implies as well as adequate case-detection program.

In addition, the Conference considered some of the deficiencies of current tuberculosis control programs. With regard to strengthening these programs it made the following recommendations without designating priorities:

1. Assumption by state and local public health authorities of their responsibility for ensuring adequate treatment and rehabilitation of all patients with tuberculosis. Regardless of the place of treatment of the patient, the attending physician should have available to him expert consultation in the fields of both the medical sciences and the social services, which should be integrated in such a manner as to provide continuity of care until the patient is restored to maximum possible productivity.

2. Concentration of the tuberculosis control program on those segments of the population with the greatest tuberculosis problem. This would include re-examination of tuberculosis control grants to states by the Federal government in recognition

of the fact that there are strongholds of tuberculosis in the country that are in need of extra resources.

3. Establishment of intermediate goals, en route to the elimination of tuberculosis, together with corresponding suggested program priorities and performance standards, in accordance with a suggested outline to be prepared by the U. S. Public Health Service in cooperation with the National Tuberculosis Association. In formulating such goals and standards the state health department should consult with its state tuberculosis association to develop a unified joint program of tuberculosis control for that state, taking into consideration the needs, extent of the problem, and resources of the various areas within the state. These state program blueprints should be made available to the U. S. Public Health Service and the National Tuberculosis Association to assist them in maintaining realistic national goals and standards.

All such goals, program priorities, and performance standards should be reviewed and revised periodically to take cognizance of changing conditions and new knowledge.

4. Periodic evaluation on a state-wide basis of tuberculosis detection programs, with adjustment of such programs accordingly, so as to obtain maximum results from the funds available. The U. S. Public Health Service should provide assistance in such a study to any state that does not have the resources to conduct its own. The U. S. Public Health Service in co-operation with the National Tuberculosis Association should formulate and make available a guide for the conduct of such state-wide evaluation of tuberculosis detection programs.

5. Periodic review by the U. S. Public Health Service of reporting practices within the various states in order to promote greater uniformity and to permit interpretation of comparable case report data.

6. Systematic local investigation of tuberculosis cases first reported by death certificate to be conducted by appropriate representatives of the local medical community.

7. Provision of laboratory services conveniently available to all physicians diagnosing and treating tuberculous patients. These services should meet certain minimum standards, such as:

a) provision for the detection by culture and the identification of *Mycobacterium tuberculosis* and other stains of mycobacteria; and

b) provision for performing tests of bacterial susceptibility to the antimicrobial agents most commonly used in the treatment of tuberculosis.

The Conference also recommended that there be regularly recurring evaluation of the adequacy and accuracy of such laboratory services.

8. Use of BCG according to the recommendations made by the Ad Hoc Advisory Committee on BCG to the Surgeon General of the U.S. Public Health Service (*American Review of Tuberculosis and Pulmonary Diseases*, Vol. 76, No. 5, November 1957) and by the American Trudeau Society (*Ibid.*, Vol. 78, No. 1, July 1958). The Conference further recommended that there be established improved standards for the evaluation of activity of BCG vaccines.

9. Intensification of research with regard to the social, psychological, and cultural factors that affect:

a) acceptance of case detection and treatment, together with continuation of treatment;

b) differential susceptibility of the individual to tuberculosis; and

c) nature and results of treatment programs.

This research would attempt to clarify what the social components are in the etiology of tuberculosis and in the program of tuberculosis control. The latter, in turn would be concerned with the cultural and other social aspects of the population involved in the particular control program under consideration and with the social aspects of the manner in which the program is conducted (for example, how it deals with the so-called "recalcitrant" patient).

10. Intensification of research for a simple and accurate tuberculin test that can be applied and read by nonmedical personnel.

11. Recognition of the importance and potential significance of the current

isoniazid prophylaxis field study of the Tuberculosis Program of the U. S. Public Health Service. The Conference recommended that adequate appropriations be continued by Congress for support until completion of this study, which may provide a significant shortcut to elimination of tuberculosis in this country.

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